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Royal Botanic Garden



Edinburgh

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W. W. Smith.

Trail Memorial Volume





THE MEMORIAL TABLET

James William Helenus Trail

A Memorial Volume

ABERDEEN

PRINTED FOR THE SUBSCRIBERS
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1923

PRINTED IN GREAT BRITAIN

PREFACE.

IN the summer of 1919 a number of Professor James W. H. Trail's old students discussed the possibility of presenting him with his portrait to mark their appreciation of his long and distinguished connection with the University of Aberdeen, which he had then served for over forty years, and their personal indebtedness to his teaching and character. Only preliminary discussions had taken place when his sudden death in the September of that year brought the project to an end. On the 5th of May, 1920, a meeting of a few of his old students was held in the Forestry Department, and it was decided that it would be fitting to replace the earlier proposal by a scheme for the creation of a memorial. Steps were taken to form a large and representative committee, with a local executive, and in its name an appeal for funds was issued to all Professor Trail's former students and to his professional colleagues and friends.

At a meeting of the subscribers held on the 29th of March, 1922, it was decided that the memorial should take a double form: that a mural tablet with a portrait plaque should be executed which might find a place in the new Department of Botany then being erected in the Chanonry: and that a memorial volume containing unpublished work of Professor Trail's should be issued.

The design and execution of the tablet was entrusted to Miss Alice B. Woodward, a reproduction of whose fine work

will be found in the frontispiece plate. The head is surrounded by a wreath of oak leaves, acorns and galls, the galls of Scotland having formed a favourite object of Professor Trail's studies. The decorative panel presents a dragon fly and a water spider, representative of his zoological interests; and a bladderwort, representative of his work on the Scottish Flora. The water spider was the subject of one of his earliest, the bladderwort of one of his last contributions to biological literature. The whole is flanked by two Brazilian palms, the family which was the subject of his first important scientific work after his return from the Amazon.

The principal item in the memorial volume is the "Flora of the City Parish of Aberdeen," a work on which he had been engaged for many years. The manuscript of the systematic record was complete, though not revised for the press. It had been prepared for the Aberdeen Natural History and Antiquarian Society, whose permission to publish was obtained. The introductory portion was contained in four manuscripts, some fragmentary, of different (and unknown) dates, and none in finished form. Fortunately it was found possible, by slight rearrangement and the deletion of a single sentence, to combine them into a connected account. In this a good many repetitions occur, but it was thought better to accept the disadvantage entailed than to attempt extensive editing. Here and throughout the volume, which has been prepared for the press by various members of the Committee, editing has been restricted to minor corrections, and slight modifications necessary to secure uniformity. It may be noted that some of the changes, *e.g.* in the Links, which Professor Trail dreaded have now taken place.

Professor Trail's other manuscripts passed to the University Library. Among them was a fragment of an "Autobiography," and this the Library Committee gave permission to print. It has been supplemented by Mrs. Trail, and is included in the "Biographic Sketch."

The block of Parson Gordon's map of Aberdeen was kindly lent by the proprietors of the *Aberdeen Press and Journal*.

In this issue of Professor Trail's own work the subscribers believe they have found the most suitable memorial to a man whose earnest work for Aberdeen University and for science has had so much influence on the many hundred students who passed through the Botany Department during the years from 1877 to 1919. Their appreciation may be expressed in the words of the inscription on the Memorial Tablet—

“ He knew and loved the realm of living nature
and inspired successive generations of students
with his desire for deeper knowledge.”



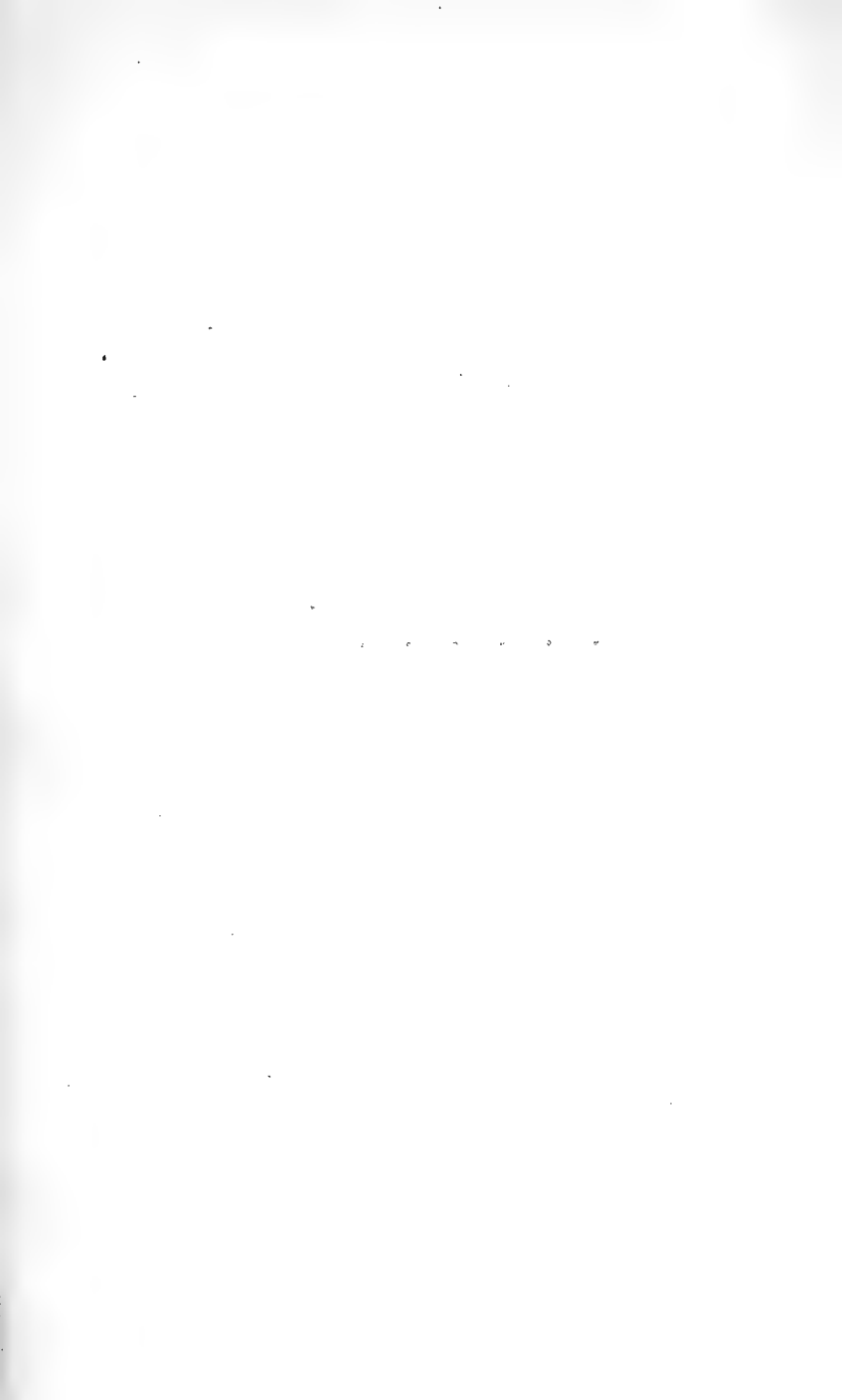
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BIOGRAPHIC SKETCH.

SOME notes found among Professor Trail's papers form the groundwork of this short sketch. They have evidently been put together for his children, and with no idea of publication. To some of his friends and old students, however, it has seemed that they should not be lost, giving, as they do, an account of student life before the New Regulations, and also allowing a glimpse of the man himself with his ideal of work and his love for the University of Aberdeen to which he was bound by so many ties. His mother passed her girlhood in one of the houses in the old quadrangle of King's College, while living with her brother, Professor Hercules Scott; his father and he, himself, were members of the Senatus together for many years; his wife was a daughter of a colleague, and love for the University seemed part of the man himself.

James William Helenus Trail was born on the 4th March, 1851, in the Old Manse of Birsay, Orkney; he was the youngest of the five children of the Rev. Samuel Trail, minister of the united Parishes of Harray and Birsay from 1844-68. He was so small and puny when born that it was found impossible to dress him, and he was rolled in cotton wool and fastened to the pillow; his face was just the size of his father's watch face. He developed slowly, and was so long in beginning to speak that for some time fears were entertained that he was going to be dumb. He soon dispelled these, when at the age of three he began to speak and was the veriest chatterbox.

His love for Nature in all her forms, which was to be such a very marked characteristic afterwards, showed itself very early, and I have been told by a visitor to the Manse of her surprise when the tiny toddler of three appeared with his pinafore full of crawly, creepy things, with his eyes sparkling, and saying, "Pretty, Pretty." He always said he inherited this love of Nature from his mother, between whom and himself there was a very great bond of sympathy and love.

The country open-air life and perfect freedom no doubt fostered in him the love of plant and animal life, while the lack of companionship—his brothers and sister being considerably older than himself—left him free to indulge in long, solitary rambles, which often kept him out on the hillside or on the moors and lochs of Orkney for the whole of the long summer day.

His education was undertaken by his father, who began to teach him the Rudiments of the Latin Grammar, when he was six,

but, as he used to say himself, he learned the rules of the Grammar for three years before it ever dawned upon him that Latin had once been a spoken language! Naturally such a training was not calculated to inspire a love of the Classics, and he might have been excused had he taken a jaundiced view of their place in the education of the youth of his day. He was saved from this by his own essential fairness, and also by the strong feeling he had that it would be the worst thing possible for his own beloved Natural Science, should it ever take the same unfair position in the school curriculum. He had a very great aptitude for languages, and after he had passed through the University he taught himself to read all the modern European languages, in which books were published, which could be useful to him in the study of plants and their diseases.

The first five years of his life were spent in the Manse at Birsay, on the picturesque bay of that name where the great Atlantic rollers crash upon the stony beach, which is slightly sheltered by the "Brough"—the high headland, which is entirely cut off from the mainland at high tide, and where the sheep in a gale take shelter at the very edge of the cliff!

Owing to the impossibility of educating the older members of the family in Orkney, they had all to be sent to Aberdeen, and James for the first eleven years of his life was practically an only child. Great economy had to be practised in order to keep the four older children at the University and at school, and James proved himself a most valuable help to his mother, who, besides superintending the ordinary work of a country manse, was looked upon by the parishioners as something of a doctor and whose advice was eagerly sought for. Many household avocations which have long fallen into disuse were practised in the manse such as grinding coffee and rice, peeling rushes for wicks for the small lamps, etc., and in all these ways James proved himself very useful—lessons which he never forgot and which made him very much more independent in the house than are most men. Those happy days had to come to an end, however, with the necessity of a more regular and systematic education.

In the later years of his life he became very much interested in genealogy, that study which seems to have such a strong fascination—especially for Scotsmen. He left valuable and careful collections upon the genealogy of the Trail Family which are now in the University Library. His notes say:—

THIS attempt to state what could be discovered regarding my ancestry is the result of various influences, of which I can trace the following:—

My mother had an unusual knowledge of traditional lore connected with families of South Kincardineshire and Forfarshire, especially about the Ogilvy kinship, to which her mother belonged.

Being the youngest child, and at times the only one at home, I was much with my mother, and heard from her much of what she knew of such lore, as well as of the traditions of Old Aberdeen and of its University. The Ogilvies were keen Jacobites, and as a child I felt the hold of the tradition and the strong dislike of the Argyll Campbells for the harm done by them to Airlie and other Ogilvy lands during the Civil Wars. My mother's niece, Mrs. Valentine, was only about four years younger than my mother, and they had grown up together like sisters. Mrs. Valentine was a very keen genealogist, and, as a child, I have wondered at her memory; but, to my regret afterwards, I remember only a very little of her conversations, and I am not aware that she ever wrote down what she could tell so fully. What I heard from my mother I remember very imperfectly; but it has helped me at times to information that I could not have obtained without this help; and a few notes in MS. by her have also aided me.

My father had accumulated a good deal of material relating to the name Trail or Traill, the substance of which will be found below. It bears largely on the family that possessed Blebo in Fifeshire, to which he traced his ancestry for the reasons stated below. The notes left by him are chiefly contained in a MS. book now [1919] in possession of my brother, John A. Trail, W.S. A good deal of what he records was derived from correspondence and the loan to him of MS. records by descendants of the Blebo family, especially through William Traill, M.D. (of North Ronaldshay and Woodwick in Orkney), and various descendants of the Rev. Robert Trail, a prominent Covenanter and minister for a time of Greyfriars parish in Edinburgh. His notes were not brought by him into definite form, and further inquiry was desirable on several points. Probably he had intended to try to make such inquiry but had omitted to do so, or had been deterred by the trouble that it would have cost him.

The duties that had to be attended to, and the time required to gain the necessary knowledge of Natural Science, prevented my spending labour in trying to add to what I had been told of their ancestry by my parents, and caused me to forget a good deal of what I had heard as a child, and have since felt cause to regret the loss of. In later years the progress of the study of heredity, and its importance in Natural Science, has led to the recognition of the probable worth of knowing as fully and truly as possible the ancestry of oneself, and therefore of one's children; but for such

knowledge to be of value the inquiry must extend not to those bearing the one surname only, but to all ancestors that can be traced with sufficient confidence, female as well as male.

I had been content to let what I knew remain at what I had found in the notes referred to, supposing it to be very unlikely that I could add materially to what they contained, or that it would be possible to trace ancestry among the classes to which I had to look, where few records had been kept, if any, and who had not the links that were likely to keep them permanently in certain homes.

My interest in questions of heredity had been growing from the side of the scientific problems, and I had followed Galton's applications of it to questions of human inheritance, but with the recognition of the very complex nature of inheritance, and of the very great limitations in its practical application even where high social rank has secured full information as to kinship, and at least some information from which to infer the characters of the persons in the lines of ancestry.

What led to my undertaking the inquiry into my own ancestry was a request from my daughter Helen before her marriage that I would give her information of what she had been told was recorded by my parents. In trying to put this into shape I realised how little it really came to, confined to a few names beyond which all was unknown, while among my father's notes the evidence on various matters appeared to be defective or misleading. Dissatisfied with this information, I sought to add to it, and to clear away uncertainties as far as could be done, though without much hope of being able to add much to what they had left in manuscript. Had I realised the time and labour it would require, I do not think I would have begun the search; but, once entered on, its interest grew as step after step was gained, and the field widened.

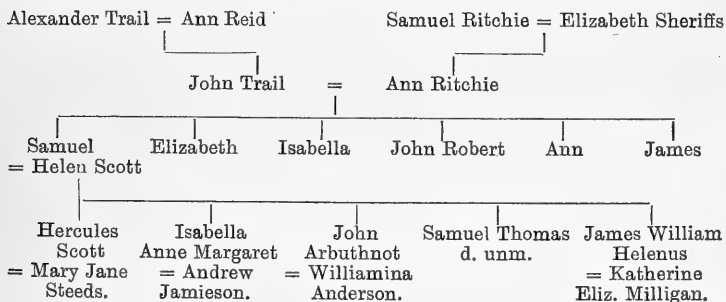
What the manuscripts contained afforded the clues to link on to other sources of information in genealogical works, in parochial registers in the Register House in Edinburgh, in such books as Jervise's "Land of the Lindsays," and now and again in passing allusions in books, etc., which had not seemed likely to be helpful. Frequently references in the books consulted opened new sources of information; and each generation introduced new matter for investigation when the names and ancestry of the mothers could be ascertained. At a distance from a library fairly rich in books on family history such an inquiry would have been doomed to failure,

but the library of the University of Aberdeen yielded many aids after the earlier difficulties had been overcome.

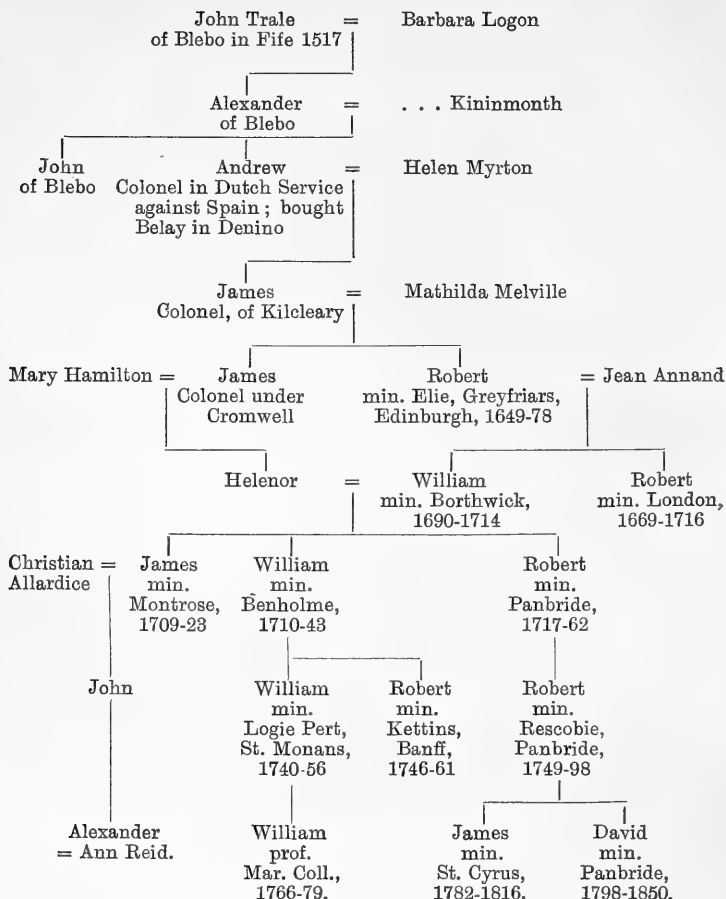
The labour of the investigation was largely repaid by the many sidelights thrown on the former history of Scotland. The social conditions, the relations between the Church (R.C.) and the people, the family histories and feuds, the personalities of the actors that shaped that history are all seen from new standpoints, and gain much in being so seen as regards their interest. I have found my outlook on these and other matters of national importance widened and changed, and my interest in them much increased as one result.

The search for information has also possessed the attraction of a scientific inquiry, apart from any personal interest, the problem in this case being to ascertain how far it seemed practicable to work out the direct ancestry of a family of the professional middle class where certain lines were already known for two or three generations back. In such an inquiry the aim should be to learn the truth, not to try to drag into the ancestry claimed any names unjustified by evidence. As regards the possibility of using the ascertained heredity to explain the personal characteristics of living persons, there seems little likelihood of practical results of value, for the records of any one ancestor are rarely such as to afford the basis of forming a trustworthy estimate; and they never are so in respect of a half of the ancestors even of monarchs.

The ancestry that could be relied on as unquestionably correct in my father's memoranda of his own family is as follows:—



He has put on record his conclusion that the above Alexander was a son of John Trail, whose descent he traces thus:—



Among my father's MSS. are the following notes:—

James Trail of Montrose married Miss Allardice, daughter of Provost Allardice of Aberdeen, by whom he had one son and two daughters. He died 26th March, 1723.

1. John, born 1st March, 1714, appears, from letters written in the years 1735-39 to his cousin the Rev. William Trail, of St. Monans, to have possessed considerable abilities. At the age of 18 or 19 he went to England and was undermaster in a school for a time. In 1740 he went with — Ramsay of Straloch to Straloch in Aberdeenshire, of a farm on which he was offered a lease to continue "as long as grass grew or water ran." But he appears to have been dissatisfied with the prospect of being a farmer, and, like many others in his day, refused the

offer greatly to the disappointment of his descendants. He appears to have died young. He married _____, and left two sons.

- (1) Alexander married Anne Reid, by whom he had two sons, John and James (who went to India in the army, and died young and unmarried), and several daughters, who died unmarried.
- (2) Robert I recollect seeing once in Aberdeen in 1820 or 1821, then an old man. He was married, but had no children. I saw his wife, a curious-looking active bustling body, about 80 years of age, older than her husband.
2. Agnes, born in 1717, married to Mr. Alexander Thomson, bookseller in Aberdeen, who died there about 1780 and left two sons and four daughters, of whom two were alive in 1805, and only one in 1826 (Chalmers MS., pp. 9, 14).
3. Susan or Susanna, married to Mr. James Chalmers, printer, of Aberdeen, by whom were several children.

These accounts of John and Alexander Trail, and that John was the son of James, minister of Montrose, I often heard from my father, when my mother and he were expressing the earnest wish that I would study for the Church and get back into the old clerical line. My father had a number of papers connected with the account he gave me of his family, which I saw and read at various times when I was a boy; but the contents of which I do not now recollect. I left home at 15 years of age and could revisit it only for a day or two once a year. I do not know what became of these papers, or what became of any of his papers after his death. I could not be present at the time of either his death or funeral.

My parents, John Trail and Ann Ritchie married _____ and had four sons, one of whom died in infancy, and three daughters.

1. Samuel, born 31st May, 1806. Went to King's College in Session 1821-22, gained prizes in the junior classes, and in Session 1824-25 gained the Hutton prize by competition and took the degree of M.A. Assistant and successor minister of Arbuthnott in Kincardineshire, in 1844 became minister of Harray and Birsay in Orkney, and in 1867 Professor of Systematic Theology in the University of Aberdeen. In 1841 he married Helen, youngest daughter of the Rev. James Scott, minister of Benholm.
2. Elizabeth, died unmarried.
3. Isabella, died unmarried.
4. John Robert, born 30th September, 1816, M.A., 1835, M.D. (Edin.), 1839, long settled at Tombeg, Monymusk, as a medical practitioner, and 1870-73 an examiner in medicine in the University of Aberdeen. He was married to _____ daughter of _____ Mitchell, farmer, on Auchnagathle, in Keig, Aberdeenshire. He died 12th February, 1875, and was buried in the grave of his wife who had predeceased him by a number of years. They had two sons, George Shewan and John, and one daughter Marianne, who died unmarried.
5. Anne.
6. James, born 8th March, 1820, at King's College 1835-37, succeeded his father as tenant on the farm of Gilmorton in Udny, afterwards took a farm in Slains, but was not a successful farmer. He died unmarried.

My mother, Ann Ritchie, was a woman of great ability and determination.

When I was between 6 and 7 years old, and had been set to learn the Latin Rudiments, she applied herself to the study of Latin for the purpose of assisting me in the preparation of my lessons.

I find no reference of any kind in my father's MS. or letters indicating his estimate of his father's ability or character or that his guidance had influenced him, apart from the statement quoted above regarding descent from "John Trail, son of James Trail, minister of Montrose," and the desire expressed that he should return to the clerical profession. To this traditional descent I shall return. What I know about my father's parents was chiefly derived from an occasional remark of Professor Francis Ogston (who had known the household and was a cousin on the Ritchie side) and of other acquaintances. From what I learned in this way, and can infer, John Trail was a native of Newmachar. The names of several sons and daughters of "Alexander Trail and Ann Reid, his wife," in "Mains of Strathloch" about 1758-61, in "Upperhill of Strathloch" in 1766, and in "Pool of Strathloch" after 1772, are recorded in the Birth Register of Newmachar, but John's name did not seem included. The parish registers, however, were often inaccurate. I have an impression that I was told that he was younger than his wife, Ann Ritchie, who was born 27th April, 1782, her father, Samuel Ritchie, living then at Green of Udny. As he was described for some years before his death, as "in Gilmorton" he appears to have been the tenant of that farm, which was the home of his daughter Ann after her marriage. John Trail seems to have settled down to the charge of Gilmorton, probably when Samuel Ritchie required help in the work.

Samuel Ritchie died in 1833, aged 77. The marriage of his daughter Ann to John Trail probably took place in 1805, as their eldest child was born 31st May, 1806, but the only marriages recorded in the Udny register between 1790 and 1816 are *clandestine* ones. Evidently marriages celebrated publicly were not thought to require a record.

The little I have been able to learn of conditions at Gilmorton suggests that John Trail, like most farmers in the district, was able to make a living, with a struggle at times no doubt, and that his wife was the guiding spirit of the two. They certainly shared the desire so common in the North of Scotland to obtain for their sons the best education within reach, encouraged, no doubt, by the exceptionally good school carried on at Udny by James Bisset,

afterwards the well-known minister of Bourtie. Professor Ogston told me that in the household the mother deferred far more to the eldest son's opinion than to his father's, as explaining a trait in my father's character of inclination to regard the views of others as to be set aside by his assertion, even when he knew little of the subject under discussion.

My father's statement that he "left home at 15 years of age, and could revisit it only for a day or two once a year" is certainly inaccurate, as during the Arts course at least he spent the summers at home on the farm. Moreover, a remark he made to me about his brother James (who, without positive habits to cause failure, was always in difficulties through want of effort to overcome them), showed that he must have lived at home after 1822, that is after he reached the age of 16. The remark was that James (born 8th March, 1820) as a child was allowed very much his own way by his mother, and that when he did not care to do anything it was not required of him. School or other tasks whose value she recognised, were escaped by James on the plea of headache, with the result that he had to fall back on farming, in which also he did not succeed. I remember him as a man under 50, but looking years older, and with a grievance against the world in general.

All three sons were sent to King's College, the University of Old Aberdeen, and their names appear in the Album: Samuel, 1821-25, Hutton Prizeman and A.M. in 1825; Joannes Robertus, 1831-35, A.M. in 1835; and Jacobus, two years in the class 1835-39, but finding the work too hard to go on with it after the second year, he seems to have returned to farmwork.

To educate the sons must have required self-denial in the parents, and was probably the ambition of their mother rather than of their father. I have never heard that the daughters were educated beyond the standard that could be reached in or near Udný. On a farm of the size of Gilmorton the farmer and his family must help in the work; and there is seldom much ready money, though there is not actual poverty. Rigid economy must often have been required, and ready money must often have been hard to find, causing it to be more convenient to let the accounts be carried on with occasional payments to account. This habit my father retained throughout his life (even when he could have easily settled accounts), much to my mother's distress, and though he had by it to pay more than by short accounts or by ready money payments, and

was occasionally involved in a good deal of difficulty through accounts that he allowed to run on in this way. After his death many accounts were rendered to his executors, some of which it was impossible to check.

After graduating M.A. in 1825 he entered on the study of Theology under Professor Duncan Mearns in Systematic Theology. With the aid of Hercules Scott, Professor of Moral Philosophy in King's College, he obtained the position of resident tutor to the sons of Viscount Arbuthnott, a post which he held for several years, until in 1841 he received from Lord Arbuthnott a presentation to be assistant and successor to the then minister of Arbuthnott, Rev. James Milne, become unfit for duty through old age.

About 1832 he became engaged to my mother, whom he had first met at the house of her brother, Professor Scott. After the death of her father, Rev. James Scott, minister of Benholm, she resided with her widowed mother in Bervie. My parents were married on

1841, after the death of Mrs. Scott, while my father was still assistant and successor in Arbuthnott. The income from a sum of about £3000 belonging to my mother (left to her as one of the family by a maternal uncle) probably enabled them to do so.

My father entered keenly into the ecclesiastical dispute, on the side of supporting the law of the country against non-intrusionists, and he adhered to the Church established by law.

A cousin of my mother's, Mrs. Hutton (*née* Margaret Scott), was married to Mr. Thomas Hutton, Factor in Orkney for the estates of the Earl of Zetland, who held the presentations to several parishes. Mrs. Hutton, though only a third cousin, and a good many years older than my mother, was an intimate friend. Hence she took the opportunity to obtain for my father a presentation to the united parishes of Harray and Birsay in the Mainland of Orkney, the former minister of which had been one of those who joined the Free Church in 1843. My father resigned his post of assistant and successor in Arbuthnott; and from 1844 until 1868 our family-home was in Orkney—until 1856 in the old manse of Birsay, where my sister and two of my brothers and I were born. As the manse was in a bad state through age, and as the heritors were not willing either to repair it thoroughly or to build a new manse, my father claimed the right to have a manse erected on the glebe in Harray, where there had not previously been one. To prepare a site two grave mounds had to be removed;

and as these were regarded in Harray as dwellings of fairies, to interfere with which would anger the fairies and probably be punished by them, there was great unwillingness to begin work on the mounds. One day some time after the site should have been cleared my father found them still untouched; but on his agreeing to stay with the men (presumably to take all risk of offending the fairies and of punishment) while at work on the mounds, they were cleared away in a few hours. It was supposed that the dispossessed fairies might assert their right to lodging in the new building; and reports of persons that, passing the unfinished manse at night after all the workmen were away, they heard carpenters' tools employed in one of the rooms was evidence that the fairies accepted the new conditions in a friendly spirit. The room in question was my bedroom when a child of 7 or 8, and I more than half believed in the fairies and hoped I might see them some night. The belief was not a cause of dread. I have reason to believe that some people in Harray thought we had made friends with and seen the fairies, but would not risk offending them by admitting the supposed intercourse.

When I first recall the home-life clearly, my father was in the habit of not rising until 11 or 12 o'clock, his breakfast being brought to him in bed, as he used to read for an hour or two there. He disliked personal exertion, and I do not think he ever took a walk of ten miles in any day, rarely even of two or three. The glebe at Harray extended to over 50 acres; and it gave him a great source of occupation, as he obtained a loan from public funds to encourage agriculture, and had the ground drained, fields enclosed and so on. It was a favourite pastime to watch the men at work for an hour or two at a time.

He bought, with the help of my mother's money, some 500 or 600 acres on the borders of Birsay and Harray, including two or three small farms, of which my brother John retained Howan, when the rest had to be disposed of by the trustees under my father's will. The desire to be a laird was strong in him; and he often went to visit the farms, which lay four or five miles from Harray, always using a gig to carry him there and back, and occasionally combining it with parochial visits. The land was not a profitable investment; and my mother had often difficulty in making ends meet, while 1*l.* weekly was the amount I (and I suppose the others) nominally received as pocket money, but it was usually in arrears. We supplemented it by earnings of various

kinds, such as for work in garden or harvest field (at 1d. per hour) catching fish (1d. per lb. for trout), shooting for the table (with a tariff for the various birds, hares, etc.), catching vermin (1d. for a rat's tail, or for those of three mice or voles). Looking back it seems to me that the gain in learning that we could win what we needed for ourselves, and the self-denial (in luxuries of the palate or in toys), to enable one to obtain the more durable pleasures (in my case books about animals, and the means for keeping pets and rearing insects, etc.) was of far greater value, and brought with it greater appreciation of the objects sought and enjoyment in their attainment than is ever known by those who are accustomed to many presents and to allowances that cost no personal effort, and allow of spending on personal luxuries before one has learned how to earn them.

Exertion of any kind was distasteful to my father, and he seldom even attempted to do any work about the house or small repairs to house or clothes, preferring to have all makings or mendings done for him as a matter of course, for which no thanks were due. He was thus very dependent on those around him, especially on my mother; but was, naturally, quite unaware of the fact. In the evening he usually slept after dinner on a sofa in the dining-room until about 8—tea-time—and then read for two or three hours. He usually went to bed about 11 p.m.

Under a sufficient stimulus he could and did work hard and steadily, and showed marked ability in Classics, Mathematics, and other studies in repute. Thus, in the Arts Curriculum he gained the highest place in his class as shown by the award of the Hutton Prize, then given for general success all round. In the ecclesiastical courts, from Kirk Session to General Assembly he took great interest, and his repute in that field is indicated by his appointment as Moderator of the General Assembly of the Church of Scotland in May, 1874. I was on duty in the valley of the Amazon River in South America during his year of office, so have to depend on the reports of how he discharged the duties which I was informed he did well and fittingly.

My brothers were hardly at home for a number of years, education at school and University causing us all to leave our home in Orkney except during vacations in summer, for vacations in winter and spring were too brief to allow of return home.

Hercules left home to attend school about 1858, and entered King's College as a bajan in 1859. The following summer he

spent chiefly in Orkney ; and, disliking the Arts Course, he entered on the study of Medicine in Aberdeen. During two or three of the summers he went on whalers, as was then frequently done by students of his type, as "surgeon" for the cruise.

John was sent to the Grammar School in Aberdeen in 1860 there having been students (John Watt and Robert Grant) as tutors during two summers in Orkney. He took a good place in Classics at school, gaining prizes ; and, gaining a bursary in the Competition in 1861, he began the Arts Course in the University of Aberdeen in 1861. He took high places in Latin, Greek, and Natural History, and was in most Merit lists ; and at the close of Session 1865-66 he graduated A.M. with "Honours" in Natural Science and "Second Class Honours" in Classics. He was the one of the family who in some measure, as a schoolboy and student, satisfied our father's estimate of ability and desire to acquire useful knowledge.

Samuel had no inclination for University studies, and showed no aptitude for Classics or other preparatory work. He was fond of gymnastics and rowing. He was sent for a year or two to school in Aberdeen, and in 1863 to the Grammar School in Kirkwall, then under a good teacher, Mr. Watson, in order to prepare for a commercial post.

As my sister was also away at boarding schools I was the only one of the family at home for a great part of each year during several years before 1862. In October, 1862, I was sent to a boarding school carried on by Dr. George Tulloch in Bellevue House in the Hardgate, Aberdeen ; the school, which was attended also by a number of sons of residents in Aberdeen, being in Academy Street, between Crown Street and Dee Street. The "Academy" is now [1919] used as the "Friends Society Meeting House," and the boarding house has changed its name also and is now the "House of Bethany."

We were all home during July, 1863. Early in August Sam became unwell, and soon it was seen that he was suffering from typhoid fever, contracted in Kirkwall apparently. This prevented all returns to University and to school. The fear of infection rendered it impossible to get proper help in nursing, the more required as Hercules and John and Bella all were attacked, as was also one of the maid-servants. My father could give no help in such times ; and the burden fell on my mother, whose health was not good, especially after a continued and serious illness eleven or

twelve years before. As always, she met the strain bravely and well. I escaped the fever, and gave such help in nursing the invalids as could be trusted to a boy of 12.

Their recovery was slow, especially with my sister (who had previously suffered from rheumatic fever), and with Sam; and in the next spring medical advice urged that they at least should spend six weeks at Wiesbaden. As my mother was very much in need of a change, and as my father also thought he would be the better of one, it was resolved that the whole family should go except Hercules, who had arranged to go another cruise in a whaler, and was off early in April. We accordingly proceeded to Wiesbaden by Leith, Rotterdam, and steamer up the Rhine. My mother's niece Mrs. Valentine, who was staying in Wiesbaden with her daughter and a friend, had secured rooms for us and had arranged for our meals being sent from a restaurant, so all was ready on our arrival.

The visit to a new country, with its new surroundings, was full of interest to all of us, and its object was realised in the improvement of the invalids' health in a very marked degree. Fortunately for me, our landlady's son Carl, who was a little older than I, was keenly interested in outdoor life, and took me for rambles to his favourite haunts, which abounded in a wealth of insects, lizards, and other creatures very surprising to me in comparison with what I knew at home. He knew little English and I knew no German; but we soon learned enough from each other to talk after a fashion, and my "*sehr schön*" was very genuine and seemed to win his goodwill. Among my prizes were two bats, caught with insect nets while they were hawking for insects over a pond. These I kept as pets for some time, and found they became quite tame and accepted insects readily as food. One of them produced a young one—a little hairless creature—which clung to her protected by one of her wings. Unfortunately the mother was very restless, shuffling about over tables and other furniture, and the baby died seemingly exhausted by the want of rest. The bats were restored to freedom before we left Germany.

In August, 1864, I was sent to attend the Grammar School in Old Aberdeen, under Cosmo Grant (brother of one of the student tutors, Robert Grant, who had taught my brothers in Orkney), who had come recently to the charge of the school. I liked him personally, and often have been surprised at his success as rector

under the miserably insufficient accommodation. All the classes were taught in two small rooms by himself and a student-assistant. We varied from mere children to men of 25 years old or more—looking forward mostly to entering the Arts Course at the University if only a bursary could be gained. Under its new head, the Old Aberdeen Grammar School more than held its own in the one recognised test of success in Aberdeen—the Bursary Competition. The translation of a passage from English into Latin prose was the supreme test of efficiency, and I never acquired the power to do so with skill, to avoid the pitfalls strewn in the way. Once my version was the best, I think it reached the coveted *sine errore*; but my single success was at least as great a surprise to myself as to my class-fellows. I could not remember the little quirks or “niceties” of the language in which we were trained in versions set from former competitions, and I loathed the arbitrariness of the methods of study in vogue for classical languages. I spent two years at the school, returning to Orkney for a six-weeks’ holiday in the summers of 1865 and 1866. During the autumn of 1864 I lodged with another boy, sharing the rooms in the same house as Mr. Grant in Old Aberdeen (now 52 High Street); and my brother Sam and I shared the same rooms next summer. In the winters 1864-65 and 1865-66 our mother came to stay with us in Aberdeen, rooms being taken for her and all her four sons during the first winter in a house in Schoolhill which was cleared away in the opening up of Harriet Street, and in the second winter in Loch Street, in what was at one time the residence of Mr. Ogston (afterwards at Ardo), which house was pulled down and replaced by the offices of the soap works. During these two winters Hercules was a student of Medicine, John a student of Arts, Sam a clerk in the North of Scotland Bank, and I at school. In the summers Hercules went on cruises or as unqualified assistant to a medical man, and John was at home in Orkney, while Sam and I remained in Aberdeen except during our holidays.

As it was necessary to exercise strict economy the lodgings were limited to the general sitting-room, a small room where work could be done in quiet if visitors were in, and bedrooms, one large in which the brothers slept, and one for our mother.

The manse of Harray was looked after during our mother’s absence by a niece of hers, and by my sister in the second winter; but my mother must have been greatly missed at home, as our father was very dependent on her for the personal comforts he was

accustomed to, and also for her to refer to in all small worries, and to read part of his sermons to for her criticism.

Our mother returned to Orkney in April, 1866, when John graduated M.A. with Honours as already stated. In the course of the summer he began his apprenticeship in Edinburgh for the profession of W.S. Hercules passed L.R.C.S. Edinburgh, in 1867.

Sam was boarded in Aberdeen and I returned to lodgings in 56 High Street, sharing rooms with a school-fellow James Cantlie (knighted in 1918, for services to V.A.D., and Red Cross work), who had love for natural history, but as little for the Classics as I had. In the Competition in October, 1866 the Old Aberdeen Grammar School took a very high place (1st, 4th, etc.), but Cantlie and I were out of the list. I assumed that my version had failed to reach the standard, but fifty years afterwards I found, on chancing to look into the University MS. record of the Competition in 1866 the words "no paper" against my name, *i.e.* my version had been lost in some way. My father was most unwilling to allow me to go to the University without a bursary, and put down my failure to gain one to laziness and carelessness. I hated the work at school, and asked to go to trade or mechanical work if the University was forbidden to me. At last, to my joy, I was allowed to try a session at the University, but told that my remaining there depended on my gaining a bursary next autumn, so as to enter the semi class with it.

A bedroom and parlour in 10 College Bounds (the house at the left hand on turning into Orchard Lane) were taken for James Mackintosh (son of the minister of Deskford) and me; and there the two of us lived and worked during the winter, without supervision. Our weekly bill for board and lodging did not exceed 10s. 6d. each, and was usually less; and I have no recollection of our feeling the need of a larger sum. Chickenpox kept me from classes four days, the only break due to my health in my attendance as a student in Arts and in Medicine.

Mackintosh and I passed in all our classes, and to myself it meant as hard work as ever a winter cost me, as its chief subjects were Latin and Greek, with English three times a week. The close of the session sent me back to the hated versions, in view of the Competition in autumn.

Dr. Robert Macpherson, Professor of Systematic Theology, died in spring, 1867, having held the chair since 1852, when my father had been a competitor for it, and had received the degree



JAMES WILLIAM HELENUS TRAIL

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of D.D. from King's College for the merit of his papers. He had long wished to hold a professorship; but was averse from again entering on the work required for the examination. My mother persuaded him to do so, and accompanied him to Aberdeen in June. The examination lasted three days, and there were five candidates. Great were our rejoicings in Orkney when we heard that he had gained the professorship; and my pleasure was much the greater because the condition that I must again try the Competition was withdrawn by him, in view of the custom that a professor's son should not hold a bursary. Next to my father in the examination came Rev. John Christie, Minister of Kildrummy, who received D.D. from the University in recognition of this, and in 1877 was appointed to the chair of Church History when Professor Pirie became Principal of the University.

My father retained his clerical charge in Orkney for a year, employing a substitute during the winter 1867-68. As the old Divinity Manse in the chaplainry had been sold, and the new one beside King's College had still to be built, furnished rooms were taken for our household for the winter in the house on the west side at the junction of Dee Street with Union Street.

With the desire to be free from the study of Latin and Greek as soon as I could, I resolved (with two class-fellows) to enter for the degree examinations at the close of this (my semi-) winter, though with dread, as the belief prevailed among students that to enter before the autumn preceding the third session of one's course was most risky, and would be punished by rejection unless exceptional fitness were shown. As a consequence very rarely was it risked. With that fear to spur us we worked hard, and all passed. (Student opinion swung round to the opposite extreme that the end of the semi-session was the easiest time and next year eighteen entered, of whom fifteen failed, re-establishing the earlier tradition. Probably most who entered thought little work required, and were badly prepared.)

At the close of the session, in April, 1868, my father and mother, sister and myself returned to Harray and spent the summer there, preparing for the final move to Aberdeen in autumn. I had the task of making a list of and packing all my father's books in numerous large wooden boxes.

There was little time during our stay in Orkney for reading in preparation for the work of the tertian year, so I was sent six weeks in advance to lodgings in College Bounds, partly to do what

I could by myself in preparation, and partly to help to prepare our home for next winter, 2 East Craibstone Street, in Aberdeen. The furniture was sent from Harray by a small sailing vessel, and was put into 2 East Craibstone Street, while my father, mother, and Bella made farewell visits in Orkney; and they arrived in Aberdeen in late autumn. Hercules had left Aberdeen finally by 1866, John was apprenticed in the office of Dalmahy & Cowan, W.S. in Edinburgh in 1866, and came to Aberdeen only for brief vacations, and Samuel obtained a post in a bank in London, I think in 1868.

In March, 1869, I passed the degree examinations in Mathematics and Natural Philosophy and Logic, and resolved to try for M.A. with "honours" in Natural Science (Botany, Chemistry, and Natural History); so I attended Botany during the summer session, and found it most interesting. I was awarded the 4th prize in the Class Examination—the first University Prize gained by me. The excursions were much to my taste, and were largely added to by two or three of us of similar tastes, so that we gained a considerable knowledge of the plants wild, escaped, and generally cultivated near Aberdeen.

In the summer of 1869 the new manse, beside King's College, for the chair of Systematic Theology was completed; and we moved into it as our home. It was said to have been designed by Lord John Manners, while at the head of the Board of Work, to gratify his taste as an amateur architect, the special aim being that it should harmonise with the buildings of King's College. Its outward aspect was regarded as of the first importance, and to it was sacrificed the value of the house as a home, the internal arrangements being most cramped and inconvenient in various respects. The attics were peculiarly so, the three rooms being very low even at their highest parts, with the roof sloping at each side so as to leave very little wall. One room was lit only by a window of about 15 ins. \times 12 ins. on each side of the fireplace, their tops not reaching to 2 ft. above the floor, and both looking north. Another room had no fireplace. As this was assigned to me as bedroom and study, a gas-stove was tried in it; but it was so unsuccessful, and vitiated the air so much, that I preferred to do without artificial heat in winter; and used to work in thick overcoat and travelling rug in cold weather.

The only access to the attics was by a narrow corkscrew stair lit by a window, through which Sam nearly fell, as he slipped on

the stair above, and just saved himself by catching the wall on each side after his body was through the window. A guard was then put in front of the window to prevent similar accidents in future. From the top of the staircase one had to go through a passage $5\frac{1}{2}$ ft. high, the cause of not a few aching blows until one learned to stoop as a habit. As it was impossible to carry any but small articles up or down the stair, the window of the attic facing the street was removed, and all the attic furniture was slung in through it, by aid of a small crane. The attic floor and other parts of the house have been much altered since we lived in it, greatly to its improvement as a dwelling.

During the winter 1869-70 I attended the classes of Moral Philosophy, Natural History (Zoology, Mineralogy, and Geology), Chemistry and Christian Evidences (one hour weekly), and worked for the degree examinations in Mental Philosophy and Natural History and for "Honours" in Natural Science. Mental Philosophy has always seemed to me to lend itself too much to verbiage and theorising, with too little check on or means of testing the validity of the conclusions arrived at. The class of Moral Philosophy did not add to my respect for this branch of study. Professor Martin gave me the impression of being a well-meaning but weak man, with a good deal of vanity, and quite unable to maintain discipline in a class. His classroom was the scene of more or less constant disorder, amounting at times to open riot, which he was unable to restrain. Those students who were working for "Honours" in any department would gladly have supported discipline for the sake of their own studies; but they were not disposed to act as informers against their class-fellows. It was necessary to secure a pass in Mental (including Moral) Philosophy, and I worked with that aim, to secure my being allowed to enter for "Honours" in Natural Science.

In Chemistry Professor Brazier had the reputation of being very hard to follow. As I had had no instruction in Chemistry I sought to help the winter's work by reading in autumn part of an elementary work on Chemistry, learning the names and atomic weights of the elements, and practising myself in the methods employed in the book of writing the simpler formulæ. It was an unpleasant surprise, therefore, when Professor Brazier told us early in the session that he had resolved to cease to use the atomic weights and formulæ he had been in the habit of using, and to substitute those that were coming into favour generally. He

invited the students attending the class for the second time to come to a special meeting when he would explain the differences of the methods, and the reasons for making the change. As I was only a beginner I thought the invitation did not include me; so I found a good deal of difficulty in passing to the new, and was disposed to regret having troubled myself to learn the old methods. But after I had become familiar with the new and could pass readily from the one to the other I found this most useful, as Professor Brazier was apt to use the old figures and formulæ at times, to the confusion and wrath of my class-fellows, who did not know the earlier methods, while I could follow the lectures in either. To me Professor Brazier seemed not to deserve the charge of being obscure, and I enjoyed his class greatly.

There happened to be a rectorial election this session, and as usual the election was fixed by the Senatus in the beginning of December. The previous weeks of the session were largely occupied with electioneering meetings and with the other distractions of such times; and Professor Brazier told us early in the session that he always found an election meant poor results in the work of the class for that session. On the last day of the course, before announcing the results of the two written examinations, he reminded us of this, saying that the class bore out his experience of the past with one exception, that of a total of 240 the second prize-man had under 180, but that the first paper was the best he had had for years and had 234. We all wondered whose this could be, and my surprise was great when he read out my name as the writer. James Cantlie was second. He also was working for the examination in Natural Science "Honours;" but, failing in Moral Philosophy, he was debarred until the following year.

The Natural History class was a great pleasure to me. It put into definite place and form much that I had more or less learned for myself from childhood out of doors and from books, and added to it in many ways. The collection of insects in the Museum was small and not in good state; so, as I had a good many collected by myself in better condition, I asked Professor Nicol if he would accept them for the Museum. In doing so I feared he might think it impertinence in a student to seem to criticise the Museum by such an offer; and it was a great relief to me when he accepted it, and asked me to put the insects to rights as far as possible. Having done this, I was glad to be allowed to do the same in other groups; and thus began work which lasted during several years,

and gave me a practical acquaintance with Systematic Zoology such as proved of great value to me. Professor Nicol's own work lay in the sciences of Mineralogy and Geology; and there were considerable accumulations of animals from India and other foreign countries lying unnamed. When he saw the pleasure I took in helping in working these out with the aid of books in the University Library, and was satisfied of my care in doing so, he allowed me a very free hand; and for three or four years I was practically in charge of the zoological part of the Museum. It was a labour of love, and I would not accept pay for it. After I had been doing it for two years he obtained a grant of £10 from University funds to be given yearly for such services. This he gave me, and I spent it on a skeleton of a rhea and other specimens that I thought would be useful to the Museum, and gave them to it, asking his permission to do so. I felt more than repaid for my work by the pleasure I got from the work itself, the free access to the contents of Museum and Library, and the knowledge I was gaining. But what I valued still more was Professor Nicol's constant kindness and encouragement, and his showing me that he thought my work was worth the doing.

But to return to session 1869-70. In the class of Natural History, Professor Nicol gave two book prizes from himself which were voted by the class to those whom the students thought best acquainted with the subjects taught. On the last day of the session the results of the voting were first announced and then those of the written examination. The two first prizes were awarded to myself, and the two seconds to Robert Neil, who afterwards went to Cambridge. In Moral Philosophy and Christian Evidences also I was a prizeman, to my own considerable astonishment.

Having passed all the examinations for the ordinary M.A., I entered for the Natural Science "Honours" examination. This also I passed, and was awarded the prize of £10, then given by the Senatus to the best in that department of "Honours." £5 was promptly spent towards the purchase of a microscope, and £5 on books in Natural Sciences.

In the summer session, 1870, I attended the classes of Practical Chemistry and Botany (for the second time, gaining the equal-first prize), and continued my work in the zoological collections in the Natural History Museum. During the botanical excursions I was able to help the junior students; and Professor Dickie thanked me

for doing so, and advised me to visit Braemar. I spent a week there in August, getting only one fine day, but was fairly successful in the search for both plants and insects. As little was known of the butterflies and moths of Braemar I sent a list of my captures to the *Entomologist's Monthly Magazine*. Dr. Francis Buchanan White, seeing it, wrote to me asking information about Braemar; and thus began a friendship which community of tastes and aims in the study of Natural Science rendered very intimate until his death in 1894.

I had hoped that my results in the Natural Science group for M.A. would show my father that I was not idling or using that side of study as an excuse to shirk what he regarded as more worth effort, and that he would withdraw his opposition to my desire to go on with scientific study; but his opposition was keen to my wasting time with what, as he said, would never help me to earn my salt, much less my livelihood. He assured me it would only lead to starvation, and looked on me as a fool when I said I was willing to starve, if need be, for the sake of the work I thought myself fit to do.

My wish was to obtain, if I could, work as a Naturalist abroad (I had no expectation of any of the better posts at home), if possible in exploration. The Amazon valley, from my boyhood, had taken a strong hold on my imagination; and I read every book about South America that I could procure from the University Library and elsewhere; but I never thought it would be seen by me. I thought my best way to obtain the work I wished would be through the medical profession, though I hated even the sight of wounds and medical work of every kind. But I recognised that there would be no more useful knowledge to a traveller, and none stronger as a recommendation for a post such as I desired.

My father urged me very strongly to become a clergyman, reminding me that he would be able to procure for me a presentation to one of the more valuable endowments, and attributing to obstinacy my reply that I could not honestly accept it if I had the gift of it. As a compromise we agreed that I should take a winter as a student of Theology, and should thereafter be allowed to choose my line of work. In accordance with this, the winter 1870-71 was given to Theological training; and in the afternoons I attended Physiology, and continued to work in the Natural History Museum.

At the close of the winter I asked my father if he was satisfied that I had kept my promise fairly, and, on his saying that I had, I

claimed his permission to enter the medical profession. This he reluctantly granted. Being M.A. and having attended Physiology in winter and two medical classes in summer, I was enrolled as having begun my medical studies in 1870. Believing that I should probably have to practise medicine as a profession I resolved to learn its principles and methods as thoroughly as I could, though continuing to work in Natural Science, especially Zoology.

I had found it impossible (being a slow writer), to take notes without losing the continuity of lectures; so I had, perforce, to be content to listen and strive to follow the lecturer's meaning and line of argument, and be content with a few catchwords, from which I reconstructed the chief points of each lecture in the evening and summarised them in a few questions, which afterwards served as my means of revisal. Thus I could not afford to trust to notes at the close of the session or to neglect the work as it progressed or to leave any part as a vague impression. Results in the class and degree examinations warranted reliance on the method, though adopted by me as a makeshift for inability to take notes, as almost all my class-fellows did copiously.

The medical degree examinations were taken in three parts, the first including Botany, Chemistry, Materia Medica and first or junior Anatomy; the second including Zoology, senior Anatomy, Physiology and Surgery; and the third completing the list with Practice of Medicine and Pathology, Midwifery and Diseases of Children, and Medical Jurisprudence and Public Health. The normal periods for taking the three examinations were at the close of the second, third, and last or fourth winters of the course. An oral examination was required of every student in each subject; and the custom was for the examiners to sit at four tables well apart in the Lower Hall or Public School, where the students were brought in, four at a time, for the first and second and three for the third set of subjects. In the first Professional fifteen minutes was allowed for each subject, and on a bell being rung by the Secretary (Professor Brazier) the students moved to other tables. Thus each set of four required one hour to go the round, and sixteen students was the full number taken in one day. In the second and third Professionals twenty minutes were allowed for each subject, and only twelve could be taken per day. Thus the orals dragged on wearily day after day when the numbers were large. If a student had obtained not less than 50 in each subject he passed. If below 50 in any subject his other marks determined

whether he might be allowed a rise say from 45 to 50 in that subject, allowing a pass. If 45 in two subjects or 40 in one, no rise was allowed, and failure in one subject entailed failure in all subjects.

After each group of students had been examined the examiners compared results, and then each student was summoned individually to be informed, by the Dean of the Medical Faculty (Dr. Macrobin), in presence of the examiners, of his success or failure. It was a very welcome surprise to me when told that in the first Professional examination I had been awarded "optime"—the highest grade. In the following year I was again given "optime" in the second examination, and Professor Brazier told me that his Assistant had suddenly left, and asked me to become his Assistant for the coming summer term. On my expressing my doubt of my own fitness to be so he said he had none, and wished much that I should accept the position, which I did. Though a little hasty tempered once or twice, he was a man whom it was a pleasure to work under, straightforward and considerate, and I found him a true friend in later years when we were colleagues.

At the close of the summer session I went for a holiday with a class-fellow, William Armston Vice, who shared my love of Natural Science and of walking. Going by steamer to Orkney, we spent a week there, and then crossed to Thurso, whence we walked westward. We were carrying all our equipment in knapsacks, so had only necessities with us. Some hours after we left Thurso the weather became very bad; but we held on to Melvich, where we arrived in the dusk, with garments soaking, in heavy rain, to be told that there was no room in the inn, and that the nearest place where we could hope for refuge was Bettyhill of Farr, a good many miles to the west. We absolutely refused to go on, and asked if there was no place in an outhouse where we could sleep, if the house was full. On finding we were prepared to rough it the landlady said there was a double-bedded room in the house that we might be willing to have, but it was a rough place, and she did not think it good enough for gentlemen. We asked to see it, and found it a large room, with bare roof, but clean, with good beds and a big fireplace, and a good table. Thankful to get it, we at once had a good fire lit and a meal ordered, and stripping off our wet clothes we hung them to dry and each occupied a bed, while the table was soon loaded with an excellent meal, to which we did full justice, clad in blankets. Next morning was fine again, and we liked Mel-

vich so well that we stayed there until the following day. Food was good and ample, and in the evening we found a fire again in our room. On asking for the bill, it was handed to me (as looking the elder), and I found, to my surprise, that for room, fire, and food for the two days for both of us it amounted to 8s. Thinking there must be some mistake, I looked at it again, to the evident anxiety of the maid, who asked if we thought it too much. My "No" was clearly a great relief to her; and when she brought the receipted bill and some change, she would not accept a tip, as "everything" was included in the bill.

We then walked to Bettyhill of Farr, where we spent two days, finding it rich in plants and animals. We expected to join another class-fellow, William H. Williamson, who had gone to Sutherland direct from Aberdeen, and was waiting us at Tongue; but on our second morning at Farr, Vice was feverish and not fit to go on. As there was no direct post by Farr we settled that I should walk to Tongue, tell Williamson, and return to Vice at Farr, leaving Williamson to join us as soon as he could there. This I did, staying at Tongue only long enough to have some food. I was overtaken by night on the way back, and slept the dark hours in as sheltered a place as I could find. On reaching Farr, I found Vice a good deal less ill, but not in a state to make a continued tramp advisable. My boots had also given out with rough work; so, when Williamson joined us, we resolved to walk through Strathnaver, stopping at Altnaharra inn. We did so for two nights; and climbed Ben Clibreck, from the top of which we had a wide view of moorland, traversed by good road, but with no other evidence of human life,

THE notes end here and I have been asked to complete them from my knowledge of the man and his interests. At first I thought this was quite impossible, and only with the greatest reluctance have I consented. It seemed to his friends that some record of his long and faithful service to the University, some picture of the man himself, true hearted, absolutely honest and fearless, should be preserved for future generations of students. I agreed, with many misgivings, to try and show the various stages of University development in which he took his share, and the part he played in influencing the various stages of the University's growth.

James used often to say that his old boots were his especial providence as it was owing to them that he had to go home sooner than he had intended. On his arrival he found a telegram waiting for him telling him to go to London to be interviewed for the post of botanist, on the expedition to South America and the Amazon Valley. Very much to his surprise and gratification he received

the appointment for which he had been very strongly recommended by Professors Nicol and Dickie. The expedition lasted for eighteen months and has been fully described in "Fifteen Thousand Miles on the Amazon," by Brown and Lidstone.

James kept a very careful diary which he sent home in instalments to his mother, and which is now in the University Library. He returned from South America in spring, 1875, on board a small steamer carrying cotton, and so heavily loaded that the bales were piled on deck almost to the top of the funnel. He used often to say that had a fire occurred on board the steamer would have been doomed. Fortunately the passage was safe although slow, and the travellers reached home safely. James had grown a beard while away, which so altered his appearance that his sister who had gone to the station to meet him passed him on the platform without recognising him. Indeed, although only twenty-four he looked very much older. The work done by him and the collections of plants and insects made by him and sent home quite established his reputation, and were the means of securing for him the friendship of Sir Joseph Hooker, Curator of Kew Gardens. It must have been difficult to settle down to work again as a student but it had to be done, and was done most successfully; James graduating M.B. in the spring of 1876 with Highest Honours.

I think it was in this last year of his student life that he acted as Chairman of the University Ball Committee, the very last position in the world which he ever expected, or seemed suited for. During his student life he entered with great zest into the many interests of the undergraduate—athletics then were practically at a discount, but the Societies, such as The Debating and Medical, appealed to him very strongly, and he took a great interest in the *Aberdeen Medical Student*, the University Magazine, which was kept up entirely by the students. During his time at college there were three Rectorial Elections, of which the one between Huxley and Lord Huntly interested him tremendously. He was chosen to be Convener of Huxley's Committee, but had to resign when he realised the very strong feeling, with which his father, and the other Divinity Professors, regarded the candidature of a man so unorthodox as Huxley.

In 1877 Dr. Dickie had to resign the Chair of Botany owing to ill-health, and James was appointed at the age of twenty-six. I believe this appointment was exceedingly popular with the students. His commission, signed by Queen Victoria, is dated 31st March, 1877. Had the appointment been made some four weeks sooner he would have been a Professor at the very early age of 25.

The appointment was made in spring, 1877, and the lectures had to be ready for the Summer Session. James was never a fluent speaker; he felt, however, very strongly that in any progressive subject, such as a scientific one, the lectures must be spoken and not read. Feeling very deeply his own inability to say clearly and succinctly what he wanted, he resolved to write the first

session's lectures and learn them by heart, knowing that if he began by trusting to his written lectures he would never have the courage to shake himself free from his written paper. Having made up his mind to do a thing he always carried it out, and on 8th May, 1877, he delivered his first lecture, as Professor of Botany, although so sick with fright that he could hardly see the students. It may be interesting to notice here that he was the first Professor to lecture on Botany in Aberdeen at the early hour of 8. The class had always been held at 9, but, in the interregnum, this hour had been secured by the Professor of Anatomy.

From the first day he never had any trouble with his class and always spoke of his students with great respect and affection. For forty-three sessions he never missed a lecture except at the time of his father's death, when he was absent from his class for two days. From a small, delicate child he had grown up to be a very strong active man, able as his students said to tire any of them out on a botanical excursion, but all his life he suffered from dyspepsia and blinding sick-headache, which would have prostrated most people. Many times he delivered his lecture quite unable to distinguish any of the faces of his students, and he felt very grateful to them for their patience and perfect quietness at such times. This tendency to sick-headache was a great trial to him in many ways; he never smoked himself, and always suffered if he were long in a room where other men were smoking, which led him gradually to shut himself up more and more in his study, and prevented his enjoying the society of his colleagues and others so much as he would have done.

In the winter of 1877-78 he taught the Class of Natural History as Professor Nicol was too unwell to do it himself.

Elected a member of the University Library Committee in 1877 he set himself to try to improve the condition of affairs in the Library. In 1891 he was appointed Curator—a position to which he was annually re-elected till his death—and at once prepared a Report to the University Court pointing out the many improvements that were necessary and suggesting ways by which they might be secured. The Report was approved by the Court in 1893 and led the way to far-reaching changes, among others the employment of women as Library assistants. The improvement in the conditions of the Library can be appreciated only by those who knew them before his Curatorship. His interest in the Library was immense, and every year he rejoiced to see how much more advantage was taken of it by the graduates as well as by the students. He gave to it very large contributions of books, also a donation of £200 for the purchase of books dealing with the Natural History of Scotland; and at his death left it his library, which contained many very valuable botanical works. It was a great grief to him that the building of the book-store at King's College, for which he had worked so hard, was delayed by the war and other causes, as he felt that it was impossible to do justice to the Library work, while everything was so congested.

In the Winter Session of 1885 the medical students expressed a keen desire to form a Company in the Local Artillery Volunteers. Professor Stirling was appointed Captain with James as his Lieutenant. Professor Stirling resigned in a very short time and James was promoted. He threw himself whole-heartedly into the work of the Company and in order to make himself thoroughly efficient, he went to Woolwich for the course of training there. The Company distinguished itself very highly at Barry gaining some of the big prizes. He remained Captain as long as the Company was in existence.

In 1887 permission was granted to Dr. Milligan to have an organ erected in the Chapel, he having collected the requisite amount. Very soon after this the renovation of the Chapel was undertaken; until this time James had attended Chapel regularly, sitting with some of his colleagues in the Graduates' stalls. The more formal service which was begun after the re-decorating of the Chapel did not appeal to him. He had an intense dislike of ceremonial in religious worship and he gave up attendance at Chapel and went to the Cathedral. Other causes had a considerable influence with him in making him take this decision. He regretted that the old custom of roll-call was given up, he felt that the service in Chapel prevented students forming any church connection while at the University, and as a Professor at Marischal College he felt that no provision was made in the Chapel for the students attending Medical and Science classes.

In 1891 Professors Pirie and Nicholson who had been joint conveners of the Science Committee resigned. James was appointed in their stead. He was re-appointed every year, and when the Science Committee became the Faculty of Science he was kept on as Dean. It gratified him very much to feel that he possessed the confidence of his colleagues and the work itself was very interesting to him. In 1917 he resigned and Professor Hendrick was appointed.

He was greatly interested in the education of women, and welcomed very much the opening of the University to them as moved by Mr. P. J. Anderson in the University Court in 1892. Aberdeen was the only University to throw open its doors quite freely to women, making no distinction and closing no classes.

Rather to his surprise he was appointed in 1892 one of the Examiners in Botany at London University. This entailed a great deal of travelling as he had to go seven times a year to London. During the Summer Session he found this very hard as he never liked to absent himself from his classroom. One day, I remember, he told his students there would be a class examination the next day when he had to be in London examining, but that he would be home in time for his class on the following morning. This was received with ironical cheers; the students not thinking it possible that he would go to London one night, examine all the next day, and return by night. The ovation he received when he walked into his classroom at 8 a.m. was very hearty, and showed the students'

appreciation of what it meant to spend two nights travelling in a 3rd class carriage and be ready to lecture without any breakfast. During this summer the famous Railway Race took place; the two great lines competing as to which should accomplish the distance from London to Aberdeen in the shortest time. I remember his walking into his own house in Old Aberdeen exactly twelve hours after he had left King's Cross.

He was elected a Fellow of the Royal Society on 1st June, 1893, and was very glad indeed that his work should have been considered worthy of the Blue Ribbon of British Science.

He was elected to the University Court in 1897 and served on it till 1905.

A scheme very dear to his heart came to fruition in 1901 when the Cruickshank Botanic Garden was founded through the generosity of Miss A. H. Cruickshank, Rose Street. In her will she left funds sufficient to purchase ground and to maintain a Botanic Garden. Large additions have been made of recent years, and it is hoped that in a few months the whole Botany Department will be brought over from Marischal College. The building for Classrooms and Laboratories is rising fast, and it is hoped a great impetus will be given to the study of Botany when the student can step out of the classroom into a well-arranged and scientifically laid out garden where he can examine the specimens for himself.

Dickie and Nicol Prizes in Botany and Zoology were founded by him in 1902 and named in grateful recognition of his teachers.

The North of Scotland College of Agriculture was established in 1904 to develop Education and Research in Agriculture. He was appointed Lecturer in Botany. This gave him a great deal of extra work, but work was the only thing for which he was ever greedy and he immensely enjoyed his duties at the Agricultural College, and his connection with his colleagues and students there.

In 1904 he was appointed Examiner in Botany on the Board of Examiners for Scotland of the Pharmaceutical Society of Great Britain which office he held till 1908. His Inaugural Address given in November, 1904, was on "Man's Relations to the Flora of Scotland." Mr. Hill, the Secretary, said "It was like a liberal education every time he came to the examinations. The extraordinary extent and accuracy of his information on all matters relating to Natural History enabled him to throw light on every subject in that connection that came up. He was so open and youthful in his outlook that it was a somewhat staggering surprise to me to find when we wanted to appoint him for a second term on the Board of Examiners, as we had unanimously resolved to do, that he was beyond the age limit for appointment."

In 1907 he gave £1000 to found the Helen Scott Fund in memory of his mother. The Fund was for the benefit of students who required assistance to enable them to prosecute their studies and to save them from the necessity of teaching in order to make

both ends meet. He had been so impressed by the harm that good students did in this way either to their health or their studies that he hoped a little pecuniary assistance given at the right time would be a great help. Believing, however, so strongly as he did in the benefit of independence he wished the Fund to be used merely as a loan and to be paid back whenever the student was in a position to do so. Much to his joy the Fund was greatly appreciated and the loans were paid back promptly accompanied by very grateful letters.

Although so deeply interested in all that concerned the University he did not neglect the claims of the city, to any help he could give it.

He was one of the last of the Provosts of Old Aberdeen; the Town Council of which, with one or two others in Scotland, had the privilege of electing its own members. He advocated very strongly, although reluctantly, the necessity of union with Aberdeen.

The University has always taken a great interest in the "Society for the Benefit of the Children of Deceased Clergymen and Professors of the Universities." It was started in 1799 to help the widows of deceased clergymen to bring up and educate the children, whose father, dying young, had been utterly unable to make any provision for them. The Society has been of inestimable benefit in the North of Scotland, and has made it a special duty to look after the elderly and indigent daughters of clergymen, who, not being expected to earn their own living, were given no training to enable them to do so. The children of Professors have never asked nor received a grant. The Secretary of the Society has invariably been a Professor—generally a son of the Manse. James joined the Society in 1877 the year in which he received his Professorship. He was made President in 1882 which office he held for 2 years. In 1893, when Professor Milligan retired and went to Edinburgh, James was appointed Secretary and Treasurer, which post he held till his death. Mr. Paull, Clerk of the Society, says: "He took a great interest in it and his support was of very great benefit."

He was an elder in the Kirk Session of St. Machar from 1887 and was the first Captain of the Boys' Brigade Company—a post which he held for many years. He was a very loyal son of the Church and was always ready with advice or help of a material kind. He had a great objection to printed lists of subscribers to the various charities, and most of his subscriptions were given anonymously.

He was President of the Working Men's Natural History Society in 1887 and took a very great interest in it always. He was also chiefly instrumental in founding the Natural History and Antiquarian Society, which is doing such splendid work.

From 1893 he was a member of the Endowment's Trust and was Chairman of the Domestic Science Committee till the time of his death.

In 1895 he was appointed a Governor of the Dick Bequest Trust Scheme—a scheme which, originally managed by the Commissioners of the Signet, was in 1891 placed under Governors drawn from Writers of the Signet, Professors of the University of Aberdeen, and men interested in education in the North. Its objects were to raise the literary qualifications of the School Masters in Elementary Schools and the promotion of higher instruction in the parochial schools in the Counties of Aberdeen, Moray, and Banff. The work appealed to James very strongly and he attended the meetings in Edinburgh whenever possible and took a big share in the work. It was largely owing to him that the study of Nature Knowledge was accepted as a subject for the examination qualifying for Grants. In many schools this has been taken up very keenly by the teachers and children alike, who show much interest both in the practical and theoretical sides.

In 1909 he offered to the Linnæan Society, of which he had long been a member, the sum of £100 to provide a prize for the encouragement of research on Protoplasm. This offer was very gratefully accepted and a Committee was formed to apply the Fund.

August, 1914, found him alone at home; he at once went to offer his services, in any capacity in which he might be found useful, hoping that his old Artillery experiences might stand him in good stead now, but he was too old, and regretfully he had to stand aside and see younger men chosen. The war took a great deal out of him; he had had many friends in Germany, and had a great admiration for the scientific work done in that country—by the skilled artisan as well as by the trained scientist. He admired the foresight and generosity of the German Government in giving large grants for museums, laboratories, and gardens, and wished very often that our own would take a lesson. Added to the burden of human misery and sorrow he felt that the country was being loaded with a debt, which it would find it very hard to pay, and that our national resources were being squandered. His work at this time was particularly hard as his assistants had volunteered, as well as his attendants. During 1917 and 1918 the influx of students was very great, and the accommodation was quite inadequate. The practical class had to be divided into three or four sections, all of which had to be supervised by himself, while he frequently had to repeat his systematic lectures.

At the beginning of the Summer Session of 1919 he had a slight attack of shingles and rather dreaded the very busy ten weeks ahead, but as usual, when he had to do a thing he braced himself up to it, and came through, much less tired apparently than we had feared. He went up Deeside in August, and although more easily tired than in former summers, he took walks, that to any other man of his age would have seemed very long, and brought home quantities of material at which he worked in the evening.

He had never looked upon death with any fear but rather with

the very certain hope that it would open up new possibilities of work—unburdened with the mortal body, and his prayer for long had been that he should die in harness. In God's great mercy, his prayer was granted. After a very short illness he passed away on 18th September, 1919.

K. E. TRAIL.

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1870.

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ibid. (Oct.), vii, 113-114. Note on the Lepidoptera of Braemar.

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ibid. i, 87. Occurrence of *Sesia philanthiformis* in Aberdeenshire.

ibid. i, 117-118. *Crambus Myellus* in Aberdeenshire.

ibid. i, 118. *Sphinx Convolvuli* in Orkney.

ibid. i, 123-125. Scottish galls.

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ibid. ii, 155-156. Occurrence of the *Echinorhynchus spinosus* on the Aberdeenshire coast.

ibid. ii, 163. *Helix ericetorum* in Sutherland.

ibid. ii, 163. Lepidoptera of Sutherland.

ibid. ii, 175. Occurrence of *Centaurea scabiosa*, L., etc., in Sutherland.

1874.

Scot. Nat., ii, 251-254, 301-305. Scottish galls.

ibid. ii, 300. Scottish spiders.

1875.

Rodrigues, J. Barbosa. Enumeratio palmarum novarum quas valle fluminis Amazonum inventas et ad sertum palmarum collectas descripsit et iconibus illustravit J. B. R. Sebastianopoli, 1875.

Notes many species of palms discovered by Professor Trail, including (p. 27) *Bactris Trailiana*, so named by Rodrigues.

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"The large collection of lepidoptera made by Mr. Trail was obtained over a very wide area and consequently is of great interest. . . . The following summary of the ground gone over by the expedition has been kindly forwarded to me by Mr. Trail, in order that some idea may be given of where the insect was collected:—

'The expedition ascended the Amazons to Tabatinga and also ascended several of the side rivers to the rapids, distances of from 700 to 800 miles. The side rivers ascended were, in order

of time, the Trombetas, the Tapajos, the Jammida, the Mauhes, the Abaxis, the Madeira, the Rio Negro, the Purus, the Juruá, the Javary, and the Jutahi. About half the Rhopalocera and the greater part of the Heterocera were taken during five months spent on the four rivers last mentioned, and on the Solimões or upper Amazon.' . . . It is a fact highly creditable to Mr. Trail that he secured no less than 274 species of butterflies alone, in the intervals between his official duties. Of the species collected many are very rare, and several are beautiful new forms; but the greatest merit of the collection consists in the extreme care with which the precise locality, date of capture, and (where practicable) the habit of each specimen is registered."

Six new species are named by Mr. Butler after their discoverer. *Cartea Trailii*, *Stalachtis Trailii*, *Perophora Trailii*, *Homoptera Trailii*, *Letis Trailii*, *Azelina Trailii*.

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and Draughtsman. Mr. W. H. [*sic*] Trail, who performed the duties of Botanist and Medical Adviser, completed the staff. . . . Their journeys extended over more than 15,000 miles."

Cameron, P. On some new genera and species of Tenthredinidæ. *Entomol. Soc. Trans.* (read 6 March), 1878, pp. 141-152.

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ibid. viii, 130. *Sparganium neglectum*, *Beeby*, as a probable Scotch plant.

ibid. viii, 145-146. Nathaniel Cameron, M.D.

ibid. viii, 146-148. Donald Manson Fraser, M.D.

ibid. viii, 153-160. On the aims and uses of provincial museums, and their relation to provincial scientific societies.

1886.

Daily Free Press 1, 15, 29 Jan.; 10 Feb. A Natural History Museum for Aberdeen.

"Except in large and wealthy towns the effort to form a general museum is a vain one and only leads to complete and ignominious failure, and were the effort made this would be the result in Aberdeen."

E. Scot. Union Proc. (1886), pp. 13-23. Presidential address on the work of the Union.

ibid. (1886), pp. 69-72. Report for 1886 on the fungi of the East of Scotland.

- Scot. Nat.*, viii, 224-231. Report on the fungi of the East of Scotland.
ibid. viii, 235-237, 264-263, 327-331. Mycologia Scotica—Supplement
 (with J. Stevenson).
ibid. viii, 242-243. Dr. J. Gilchrist.
ibid. viii, 250. A new gall midge, *Hormomyia Abrotani*.
ibid. viii, 289-292. Charles William Peach.
ibid. viii, 292-298. Thomas Edward.
ibid. viii, 298-299. Abram Sturrock.
ibid. pp. 302-307. Analytical key to Scottish oak galls.
ibid. viii, 302-307. Scottish oak galls.
ibid. viii, 344-354. President's address: On the work of the Union.
Nicholson, George. The Illustrated Dictionary of Gardening, a
 practical and scientific Encyclopædia of Horticulture for gardeners
 and botanists. 4 vols. London, 1883-89.

In vol. 2 (1886) the editor, Mr. Nicholson, is given as "Assisted by Professor J. W. H. Trail in the parts relating to Insects and Fungi." Professor Trail "has supplied the articles on Fungi, Insects, Nectary, Orchid fertilisation, Ovary, Ovule, etc. As Dr. Trail has made plant diseases a special study, and as the information he gives is more full and complete than any available in other gardening works, this feature of the Dictionary of Gardening will doubtless prove of both considerable interest and value." To vol. 4 (1889) Professor Trail contributed (pp. 458-462) "a practical and comprehensive classification of insects and other animals according to their properties, beneficial or injurious to the horticulturist."

1887.

- Syllabus of lectures on botany in the University of Aberdeen. Aberdeen
 University Press [1887]. 8vo. Pp. [iv] + 45 + [3].
E. Scot. Union Proc. (1887), pp. 27-34. Report for 1887 on the fungi of
 the East of Scotland.
Scot. Nat., ix, 1-2. George Ogilvie-Forbes.
ibid. ix, 2-3. Rev. James Peter.
ibid. ix, 39-42. Report for 1886 on the fungi of the East of Scotland.
 Also off-print, repaged 1-4 with title page.
ibid. ix, 43-45. Scottish Cryptogamic Society.
ibid. ix, 50-51. Dr. William Traill.
ibid. ix, 66-77. On the influence of Cryptogams on mankind.
ibid. ix, 77-86. Revision of the Scotch Peronosporæ.
ibid. ix, 86-91. New Scotch microfungi.

This with two preceding items repaged 1-24, with title page "Papers read before the Scottish Cryptogamic Society."

Scot. Nat., ix, 105. Swift attacked on the wing by a sparrow.

ibid. ix, 107-110. Scottish galls.

Also off-print, repaged 1-3.

ibid. ix, 110-128, 184-190. Revision of Scotch Sphæropsideæ and Melanconieæ.

ibid. ix, 167-174. Report for 1887 on the fungi of the East of Scotland.

Also off-print, repaged 1-8.

ibid. ix, 175-176. Dr. James S. Crichton.

1888.

Crypt. Soc. of Scot. Trans. (read 12 Sept. 1888), 1889, pp. 30-49. The Fungi of Inveraray: II. Micromycetes.

ibid. (read 13 Sept. 1888), 1889, pp. 50-88. Revision of Scotch Discomycetes.

Bot. Soc. [Edin.] Trans. (read 8 March), xvii, 201-219. Galls of Norway.

E. Scot. Union Proc. (1888), pp. [37-39]. Report for 1888 on the Fungi of the East of Scotland.

ibid. (1888), pp. [41-76]. The gall-making Diptera of Scotland.

Inverness Scient. Soc. Trans. (read 13 July), iii, 408-415. Additions to the Flora of Scotland.

Nat. Hist. Soc. Glasg. Trans. (read 27 Dec.), N.S., iii, 9-21. Revision of the Scotch Perisporiaceæ.

Also off-print, repaged 1-13 + [1], with title page.

North. Assoc. Lit. and Scient. Soc. Trans., i, 6-14. Chairman's address at Huntly, 13th July, 1888.

Perths. Soc. Nat. Sci. Trans. (read May), i, 72-90. The gall-making Hymenoptera of Scotland, exclusive of those that live on oaks.

Also off-print, repaged 1-19, with title page.

Scot. Nat., ix, 208. Additions to Scotch Peronosporæ.

ibid. ix, 219-236, 262-272. Revision of Scotch Sphæropsideæ and Melanconieæ.

Also off-print, repaged 1-53, with title page.

ibid. ix, 242-243. Professor Alexander Dickson.

ibid. ix, 243-245. John T. I. Boswell Syme.

ibid. ix, 281-288, 309-328, 373-382. The gall-making Diptera of Scotland.

Also off-print, repaged 1-36, with title page.

ibid. ix, 298-304. The Lepidoptera of the Outer Hebrides, Orkney, and Shetland.

ibid. ix, 344. Ring-ouzel (*Turdus turquatus*, L.) in Orkney.

ibid. ix, 355-357. Report for 1888 on fungi of East of Scotland.

Also off-print, repaged 1-3.

1889.

Bot. Soc. [Edin.] Trans. (read 9 May), xvii, 487-495. Enumeration of fungi collected in Hardanger in 1887.

ibid. (read 13 June), xvii, 482-486. Galls of Norway.

Gard. Chron. (27 July), Ser. 3, vi, 103. Unconscious influence of human agency on the Flora of Scotland.

Scot. Nat., x, 30-32. The Peronosporæ of Orkney.

ibid. x, 57-76. Micromycetes.

ibid. x, 97-98. Emeritus-professor Alexander Harvey, M.D.

ibid. x, 98. Reed bunting in Aberdeenshire.

ibid. pp. 125-142, 171-190. Revision of Scotch Discomycetes.

Plowright, Charles B. Monograph on the British Uredineæ and Ustilagineæ. London, 1889.

Puccinia Trailii described on pp. 176-177. Named by Mr. Plowright after Professor Trail who discovered it near Aberdeen in 1888 growing upon the common reed and sorrel.

Warren, William. On the Pyralednia collected in 1874 and 1875 by Dr. J. W. H. Trail in the basin of the Amazons (read 6 Feb.), *Entomol. Soc. Trans.*, 1889, pp. 227-295.

1890.

E. Scot. Union Proc. (1890), pp. 21-31. The British Association in its relation to local natural history.

ibid. (1890), pp. 39-43. Report for 1890 on the fungi of the East of Scotland.

Perthsh. Soc. Nat. Sci. Trans. (read Jan. 1890), 207-221. On spiders, with a list of Perthshire species.

Scot. Nat., x, 222-223. Revision of Scotch Discomycetes.

ibid. x, 224-226. New records for "Clyde."

ibid. x, 226-232. Scottish galls.

This, with two preceding items, repaged 1-11, as an off-print.

ibid. x, 233-239. Second Report of the Committee for the purpose of collecting information as to the disappearance of native plants from their local habitats, by Professor Hillhouse. Reviewed by J. W. H. Trail.

ibid. x, 252-262. The Work of the British Association in 1889 in relation to local scientific societies.

ibid. x, 275-282. Report for 1889 on the fungi of the East of Scotland.

ibid. x, 283-284. Professor William Ramsay Macnab, M.D.

ibid. x, 289. Robert F. O. Farquharson.

ibid. x, 302-327, 367-373. Revision of the Uredineæ and of the Ustilagineæ of Scotland.

ibid. x, 346. Excursion to St. Cyrus and Johnshaven.

Scot. Nat., x, 349-359. The British Association in its relation to local natural history museums.

ibid. x, 366. New records of flowering plants for North Aberdeen.

ibid. x, 394. Additions to the List of Scotch Discomycetes.

1891.

Syllabus of lectures on botany [second edition]. Aberdeen University Press (1891). 8vo. Pp. 56.

✓ *Crypt. Soc. of Scot. Trans.* 1891, pp. 1-48. Revision of the Uredineæ and of the Ustilagineæ of Scotland. (Reprinted, with Indexes and emendations, from *Scot. Nat.*, 1890, pp. 302-327, 367-373.)

✓ *Scot. Nat.*, xi, 31-35. Report for 1890 on fungi of E. of Scotland.

1892.

University of Aberdeen. Report on the Library of the University, prepared by the Library Committee and approved by the Senatus of the University on 26 July (1892). Folio. Pp. 19 + [1].

Annals of Scottish Natural History. Edited by J. W. H. Trail (with J. A. Harvie-Brown and W. E. Clarke). Vols. 1-20, 1892-1911.

ibid. (Jan.), i, 79-80. Cauliflower disease of strawberry at Aberdeen.

ibid. (Jan.), i, 80. Scarcity of oak galls in 1891.

ibid. (Oct.), i, 245-247. Pistillody of the stamens in the "Champion" potato.

ibid. (Oct.), i, 264-266. New Scottish galls.

Daily Free Press (11 Jan.). Aberdeen University buildings extension scheme. The claims of botany and a botanic garden.

Advocates the formation of a "garden on a part of the undulating ground west of College bounds in Old Aberdeen.

ibid. (2 March). The extension of Aberdeen University buildings. Proposed exchange of Marischal and Gordon's Colleges.

Points out that the "desire to provide if possible for the beautifying of the city and even more the reluctance that all must feel to depart from historic sites . . . are dangerous feelings if permitted to stand in the way of the healthy development of national institutions."

ibid. (28 March). Aberdeen University buildings extension scheme.

Points out that the site on which Gordon's College is built was the gift of the founder of Marischal College, and that the feu in 1732 to the Magistrates was illegal under the Earl's charter.

Professor Trail. *Alma Mater* (3 Feb.), ix, 123, portrait. Signed H.-B.

Müller, J. *Aargau*. Lichenes Epiphylli Spruceani, a cl. Spruce in regione Rio Negro lecti, additis illis a cl. Trail in regione superiore Amazonum lectis, exhb. Kewensi recenter missi, quos exponit Dr. J. Müller. *Journ. Linn. Soc. Bot.* (read 5 May), xxix, 322-333.

Including *Lecidea* (§ *Biatoria*) *Trailiana* named by Dr. Müller after its discoverer.

1893.

The University Library, Aberdeen. List of works of a periodical class, with prices. April, 1893. 8vo. Pp. 14.

Ann. S.N.H. (Jan.) ii, 37-40. *Peziza ammophila*, D. and M.

ibid. (Jan.), ii, 52-53. *Lepigonum neglectum*, *Kindb.*, and *Polygonum minus*, *Huds.*, in N.E. Scotland.

ibid. (Jan.), ii, 53. *Lupinus perennis*, *L.*, in Scotland.

ibid. (July), ii, 187. Orchids and rooks.

ibid. (July), pp. 187-188. Sundews and butterflies.

ibid. (July), ii, 188-189. Uredineæ in Scotland.

Daily Free Press (14 Dec.). Aberdeen University Library [Letter].

1894.

Ann. S.N.H. (Jan.), iii, 52-54. Alexander Stephen Wilson, C.E.

ibid. (Jan.), iii, 58. Some unexpected "aliens" in the Flora of Aberdeen.

ibid. (April), iii, 65-71. Portrait. The late Rev. George Gordon, LL.D.

ibid. (April), iii, 72-75. Portrait. John Roy, LL.D.

ibid. (April), iii, 121 ? 54. The common nettle (*Urtica dioica*) in Scotland.

ibid. (April), iii, 122-123. First records of Scottish plants.

The Library, vi, 13-18. (Read before the Library Association, Sept. 1893.) The classification of books in the Natural Sciences.

1895.

Ann. S.N.H. (Jan.), iv, 58. *Retinia resinella*, *L.*, in Aberdeenshire.

ibid. (April), iv, 73-91, with portrait. Francis Buchanan White, M.D.

ibid. (July), iv, 200. Variation in plants.

Cairng. Club Journ. (Jan.), i, 197-212. The flowering plants and fern allies of the Cairngorms.

Perthsh. Soc. Nat. Sci. Trans. (read April, 1895), ii, 127-131. Botanical notes from Murthly.

1896.

Aberdeen University Library. Note on subject catalogue. (Submitted to, and approved by, Library Committee, 15 January, 1896). 4to. Pp. 2 + [2].

University of Aberdeen. Report by the Library Committee to the Senatus Academicus for the year ending 15 Sept., 1896 (—30 Sept. 1910). In terms of Ordinance No. 64, Section XV, Folio pp. 3 + [1].

Signed by Professor Trail as Curator. See *infra*, under 1911.

Ann. S.N.H. (April), v, 73-76, with portrait. The late Colonel H. M. Drummond Hay.

ibid. (Oct.), v, 231-245. Florula of a piece of waste ground at Aberdeen. This, with vol. vi., pp. 24-31, repaged 1-23 as an off-print.

Brit. Assoc. (66th Meeting, Liverpool), *Report*, pp. 692-696. Preservation of vegetable specimens for museums.

Also in off-print, pp. 10-14.

ibid. pp. 1016-1017. Preliminary notes on floral deviations in some species of *Polygonum*.

1897.

Ann. S.N.H. (Jan.; Oct.), vi, 24-31, 237-245. Florula of a piece of waste ground at Aberdeen.

ibid. (Jan.), vi, 52. *Linaria viscida*, *Moench.* (*L. minor*) in Kincardineshire.

ibid. (Jan.), vi, 52-53. *Rhinanthus major*, *Ehrh.* in Aberdeen.

ibid. (Jan.), vi, 53. *Ranunculus fluitans*, *Lam.*, in N.E. Scotland.

ibid. (Jan.), vi, 55-56. Discomycetes in Morayshire.

ibid. (July), vi, 171-188. Galls.

1898.

Ann. S.N.H. (Jan.), vii, 7-8. The late George William Traill.

ibid. (Jan.; April; July; Oct.), vii, 39-46, 98-111, 164-177, 230-235. Topographical botany of Scotland.

White, Francis Buchanan White. The Flora of Perthshire. Edited with an Introduction (pp. vii-xiv), Life of the author, List of his scientific publications (xxviii-lix) and an Appendix (383-390), by James W. H. Traill. Edinburgh, 1898. 8vo.

1899.

Ann. S.N.H. (April; July), viii, 95-103, 165-172. Topographical botany of Scotland.

ibid. (July), viii, 188. Seed-production in *Dianthus deltoides*.

ibid. (Oct.), viii, 221-230. Florula of a piece of waste ground at Aberdeen.

1900.

Ann. S.N.H. (Jan.; April), ix, 32-42, 103-108. Topographical botany of Scotland.

ibid. (Jan.), ix, 56-58. *Spergula arvensis*, *L.*, in Scotland.

ibid. (April), ix, 127-128. What is the blue lupine naturalised in Scotland?

ibid. (April), ix, 128-129. *Mimulus luteus*, *Linn.*, of British Floras.

ibid. (Oct.), ix, 253. *Matricaria discoidea*, *D.C.*, in North Aberdeenshire.

Buchan Field Club. Trans. (read 20 April), v, 174-179. Notes on the Flora of Buchan.

Also off-print, repaged 1-6, with title page and map.

MacGillivray, William, W.S. A memorial tribute to William MacGillivray, LL.D. Edinburgh, 1901.

Pp. 65-69: speech by Professor Trail at presentation of memorial tablet in Marischal College, 20 November, 1900.

1901.

Ann. S.N.H. (April), x, 121-122. *Spergula arvensis*, *L.*, in Scotland.

ibid. (April), x, 122. *Stellaria nemorum*, *L.*, in Banffshire.

ibid. (April; Oct.), x, 122, 244-245. *Matricaria discoidea*, *D.C.*, in North Aberdeen[shire].

ibid. (July), x, 164-176. The Flora of Buchan.

ibid. (July), x, 179-180. *Euphrasia* in Northern Scotland.

ibid. (July), x, 185-186. *Rubus idæus*, *L.*, var. *obtusifolius*, *Willd.*, in North Aberdeen.

ibid. (Oct.), x, 217-227. Progress of botany in Scotland.

— *Buchan Field Club Trans.* (read 13 Feb.), vi, 69-162. The Flora of Buchan.

Also off-print, repaged 1-98, with title page, dated 1902, and map.

McConnochie, Alexander Inkson. The Book of Ellon. Ellon, 1901.

Pp. 70-81: The botany of the Ellon district, by James W. H. Trail.

1902.

Aberd. Univ. Calendar (1902-03), Appx., pp. 208-209. The Dickie fund and the Nicol fund—letter to University Court.

Ann. S.N.H. (Jan.), xi, 44. Notes on Aberdeenshire roses, by W. Barclay. [Note added by J. W. H. Trail.]

ibid. (Jan.; April), xi, 45-50, 97-102. Additions to the Flora of Buchan.

Also off-print, repaged 1-10.

ibid. (Jan.), xi, 59. Scottish galls.

ibid. (Jan.; July; Oct.), xi, 59, 170-176, 233-244. Scottish rubi.

ibid. (April), xi, 123-124. Three galls on the ash (*Fraxinus excelsior*).

ibid. (July), xi, 167-169. A nearly forgotten Scottish botanist (James Beattie).

ibid. (July), xi, 177-178. A new form of *Euphrasia curta*, *Fr.*

ibid. (Oct.), xi, 244-250. Scottish *Hieracia*.

ibid. (Oct.), xi, 254-255. The rowan tree and its parasites on Speyside.

1903.

Ann. S.N.H. (Jan. ; April), xii, 41-47, 103-107. Scottish rubi.

This, with vol. xi, pp. 170-176, 233-244, repaged 1-27 as an off-print.

ibid. (Jan.), xii, 54-55. The dead nettles (*Lamium*) in Scotland.

ibid. (July), xii, 180-183. Scottish *Perisporiaceæ*.

ibid. (July), xii, 188. New records for Aberdeenshire.

ibid. (July), xii, 188-189. Gall-making fungi on roots of *Juncus*.

ibid. (Oct.), xii, 250. *Ranunculus sardous*, *Crantz*.

ibid. (Oct.), xii, 251-252. *Juncus tenuis*, *Willd.*, in Kincardineshire.

ibid. (Oct.), xii, 252. *Glyceria plicata*, *Fries.* and *G. aquatica*, *Sm.*

Bot. Soc. [Edin.] Trans. (read 12 Feb., 1903), xxii, 265-277. Suggestions towards the preparation of a record of the flora of Scotland.

ibid. (read 12 Feb., 1903), xxii, 277-308. Topographical botany of the river-basins Forth and Tweed in Scotland.

Buchan Field Club Trans. (read 19 Aug.), vii, 183. Plants of the braes of Gight.

1904.

Report on "Aberdeen University Studies," 18th Jan., 1904. Fo. Pp. 6.

Syllabus of instruction in botany. [Third edition.] Aberdeen University Press (1904). 8vo. Pp. 63 + [1].

The wild flowers of St. Cyrus.

4 pages prepared for *Aberd. N.H.Soc.* excursion.

Ann. S.N.H. (Jan.), xiii, 1-3. Rev. John Stevenson, LL.D.

ibid. (April), xiii, 103-106. Alien flora of the lower part of the Spey.

ibid. (April), xiii, 116-119. The *Rubiaceæ* of Kincardine, Aberdeen and Banff.

ibid. (April), xiii, 130. Gall upon *Sagina ciliata*, *Fr.*

ibid. (April), xiii, 130-131. Aliens among tares in Aberdeenshire.

ibid. (July), xiii, 137-138. William Tait, LL.D.

ibid. (July), xiii, 196-197. *Rhinanthus*.

ibid. (Oct.), xiii, 250-252. The sea lyme grass (*Elymus arenarius*, *L.*) in N.E. Scotland.

Buchan Field Club Trans. (read 1 April), viii, 2-56. Retiring presidential address on "The Flora of Buchan—its distribution, origin and relations to man."

Also off-print, paged 2-56, with title page: The Flora of Buchan, Peterhead, 1904.

Pharm. Journ. (3 Dec.), lxxiii, 816-820. Man's relations to Flora of Scotland. (Inaugural address to Pharmaceutical Society, 25 Nov.)

Also off-print, repaged 1-15. See also *Chemist and Druggist*, lxx, 930.

Professor Trail. *Alma Mater* (21 Dec.), xxii, 102, portrait.

1905.

Ann. S.N.H. (April), xiv, 123. *Pyrus Aria*, Ehrh.

ibid. (April), xiv, 123. Bladderworts (*Utricularia*) in Scotland.

ibid. (July; Oct.), xiv, 174-177, 224-235. Additions and corrections to the Topographical Botany of Scotland.

ibid. (July), xiv, 187. The plants of the Flannan Islands.

ibid. (Oct.), xiv, 193-195. Portrait. Rev. James Keith, LL.D.

Bot. Soc. [Edin.] Trans., xxiii, 69-81. Herbaria and biology.

Also off-print, repaged 1-13.

Shewan, Alexander. *Meminisse juvat*, being the autobiography of a class at King's College in the sixties. (Aberd. Univ. Studies, No. 15.) Aberdeen, 1905. Pp. 149-150: J. W. H. Trail.

1906.

Aberdeen Working Men's Nat. Hist. and Sci. Soc. Trans. (read 16 Jan., 1906), i, 203-206. Aliens.

Ann. S.N.H. (Jan.; April; July; Oct.), xv, 33-48, 93-100, 172-184, 230-233. Additions and corrections to the Topographical Botany of Scotland.

ibid. (April), xv, 121-122. *Alchemilla conjuncta*, Bab., and *A. alpina*, L.

ibid. (July), xv, 165-170. The flora of Fair Isle.

ibid. (Oct.), xv, 242-243. Aliens among tares in Aberdeenshire.

ibid. (Oct.), xv, 243. Procumbent meadow grass (*Sclerochloa procumbens*, Beauv.) in Scotland.

ibid. (Oct.), xv, 243. *Synchytrium Stellariæ*, Fuckel, in Aberdeenshire.

ibid. (Oct.), xv, 244. Gall on elder or bourtree (*Sambucus nigra*, L.).

ibid. (Oct.), xv, 244. The Hessian fly (*Mayetiola destructor*) in N.E. Scotland.

Kew Bull. Add. Ser. (1906), v, 41-46. Galls (wild fauna and flora of the Royal Botanic Gardens, Kew).

Anderson, P. J. Studies in the history and development of the University of Aberdeen: a Quatercentenary tribute paid by certain of her professors and of her devoted sons. Aberdeen, 1906.

Pp. 147-200: Natural Science in the Universities. By James W. H. Trail.

1907.

Topographical Botany of Scotland. Reprinted from *The Annals of Scottish Natural History*, January, April, July and October, 1898; April and July, 1899; January and April, 1900. Pp. 15-141.

It was Professor Trail's intention to collect his articles on topographical botany, and have them issued, with revisions, as one of the series of "Aberdeen University Studies." But the project never fully materialised. The title above is taken from a printer's "second revised proof" in paged form, dated May, 1907, of which the only known copy is preserved in Aberdeen University Library (*Pamphlets*: H. 169).

Ann. S.N.H. (Jan.), xvi, 1-9. Wanted—the Natural History Society of Scotland.

ibid. (Jan.), xvi, 55. *Carex muricata*, Linn., in North Aberdeen.

ibid. (April), xvi, 109-111. Gooseberry-mildews.

ibid. (April), xvi, 122. Altitudinal range of *Utricularia minor* (in Scotland) by William Evans. [Note by J. W. H. Trail.]

ibid. (July), xvi, 188. Origin of the blue lupine (*Lupinus nootkatensis*, *Donn*) as a denizen by the Dee.

ibid. (Oct.), xvi, 193-195. Portrait. Alexander Somerville, B.Sc.

ibid. (Oct.), xvi, 226-232. Additions and corrections to the Topographical Botany of Scotland.

ibid. (Oct.), xvi, 251. *Juncus balticus*, *Willd.*, away from the sea-coast.

ibid. (Oct.), xvi, 252. Mite-galls on the beech (*Fagus sylvatica*) in Scotland.

ibid. (Oct.), xvi, 252-253. Galled flowers of field gentian (*Gentiana campestris*).

1908.

Aberdeen Univ. Calendar (1908/09), Appx. pp. 151-156. The Helen Scott fund—Deed of foundation.

Alma Mater (17 June), xxv, 235-236. After Graduation — What? Biology, by James W. H. Trail.

Reprinted in R. N. Gilchrist's "After Graduation—What?" *Aberd.* 1911, pp. 165-173.

Ann. S.N.H. (Jan.), xvii, 44-48. Additions and corrections to the Topographical Botany of Scotland.

ibid. (Jan.), xvii, 58. Casuals near Aberdeen.

ibid. (July), xvii, 187-188. A simple method of recording local distribution.

ibid. (Oct.), xvii, 258. *Radicula palustris*, *Moench.* (*Nasturtium palustre*, *D.C.*) in Kincardineshire.

ibid. (Oct.), xvii, 258-259. Floral variation in the genus *Veronica*.

Kew Bull. (1908), pp. 49-52. Museum preparations. The preservation of green colours in botanical specimens exposed to light.

Tocher, J. F. Majority celebrations, 10 October, 1908. James W. H. Trail. *Buchan Field Club Trans.*, ix, 284-292. Portrait.

Also off-print repaged 1-8. The List of papers, articles, etc., by Professor Trail contributed by himself.

1909.

Ann. S.N.H. (July), xviii, 129-133, with portrait. George Sim, A.L.S.
ibid. (July), xviii, 178-180. Additions and corrections to the Topographical Botany of Scotland.

ibid. (Oct.), xviii, 250. Additional vice-county records from West of Scotland.

ibid. (Oct.), pp. 250. *Synchitrium aureum*, *Schroet.*, near Aberdeen.

Linn. Soc. Proc. (1914/15), pp. 52-53. Memorandum on a Proposed Fund for Research on Protoplasm, with constitution of the Trail Award and Medal. Adopted by the Council, 1 April, 1909.

Awarded in 1910, 1915, and 1920.

1910.

Ann. S.N.H. (July), xix, 185-186. *Lycopodium Selago*, *L.*, in a strange habitat.

ibid. (July), xix, 186. *Sarcoscypha protracta* (*Fr.*) *Sacc.*

ibid. (Oct.), xix, 253. *Moneses uniflora*, *A. Gray.*

ibid. (Oct.), xix, 253-254. Poppies by railways near Aberdeen.

British Association (80th Meeting, Sheffield) *Report*. Presidential address (on the study of the British Flora: read Sept.), pp. 768-774.

Also in *Journ. Bot.*, xlviii, 241-250; *Nature*, lxxxiv, 452-455.

Cairngorm Club Journal (July), vi, 262-264. The Club on Carmafereg.

1911.

Aberdeen Univ. Libr. Bull. (Jan. 1912-Dec. 1918), i-iv. Report by the Library Committee to the Senatus Academicus for the year 1 October, 1910 to 30 September, 1911 (—1917/18) in terms of Ordinance No. 64, Section XV.

Signed by Professor Trail as Curator See *supra* under 1896.

Ann. S.N.H. (April), xx, 120-121. *Poa palustris*, *L.*, near Aberdeen.

ibid. (July; Oct.), xx, 175-180, 232-240. Man's influence on the indigenous flora of Aberdeen.

Also off-print, repaged 1-14.

ibid. (Oct.), xx, 249-250. *Utricularia ochroleuca*, *R. Hartm.*, and *Eriophorum paniculatum* in the valley of the Dee in South Aberdeenshire (92).

ibid. (Oct.), xx, 251. The Summer of 1911.

1912.

Aberdeen Working Men's Nat. Hist. and Sci. Soc. Trans., iii, 70. Our portrait—Professor J. W. H. Trail. Portrait.

Craib, William G. Flora of Banffshire (*Aberd. Univ. Studies*, No. 54). Aberdeen, 1912.

"It is impossible to specify or to attempt to gauge how much the work is indebted to Professor Trail for records in every parish, which he has very generously placed at my disposal."

1914.

Record Book of the Flora of Scotland: flowering plants, fern allies and Characeæ. Aberdeen: University Press, 1914.

"Chiefly employed in recording the distribution of plants throughout the counties around Aberdeen, taking parishes as the basis of the records, but subdividing them by river basins, coasts, and other natural areas." Pp. vi + 112. The names of the plants are printed at the left of each page, followed by ten numbered columns.

1917.

Linn. Soc. Proc., 1916/17, pp. 71-75. James Stirton, M.D., F.L.S.

Sutherland, George K. New marine pyrenomycetes. *Brit. Myc. Soc. Trans.* (1917), v, 149-151, plate.

New genus *Trailia*, species *ascophylli*, described. Named by Mr. Sutherland after Professor Trail, who discovered it in Orkney in 1914. [*Cf.* the entry *supra*, under 1878, **Cameron, P.**]

1918.

Aberdeen Univ. Review (Feb.), v, 150-151. Address to the Linnean Society by Sir David Prain, 1917: review by J. W. H. Trail.

ibid. (Feb.), pp. 236-239. Address at the Graduation, 23 March.

Professor Trail presided as Senior Professor in the absence of the Chancellor and Vice-Chancellor.

1919.

Aberdeen Univ. Review (March), vi, pp. 138-140. In memoriam Charles Ogilvie Farquharson.

OBITUARY NOTICES.

Aberdeen Daily Journal (19 Sept.), *Aberdeen Free Press* (19 Sept.), *Aberdeen University Review* (Nov. 1919), vii, 39-45, portrait. ("In Memoriam, Professor J. W. H. Trail," by Sir David Prain; "The Curator of the Library, 1891-1919," by P. J. Anderson; "The Professor ultra Cathedram," by Alexander Macdonald); *Aberdeen University Library Bulletin* (Jan. 1920), iv, 149-153, portrait (by Miss Maud Storr Best); *Alma Mater* (22 Oct. 1919), xxxvii, 2, portrait (by Professor J. Arthur Thomson); *Journal of Botany* (Nov. 1919), lxxvii, 318-321 (by Sir David Prain); *Kew Bulletin*

(1919), 378-388 (1912), 32-33 (by Sir David Prain : publications by Miss M. G. Aikman); *Nature* (25 Sept.), 1919, civ, 76-77 (by Professor F. O. Bower); *New Phytologist* (Jan./Feb., 1920), xix, 46-48 (by Dr. Macgregor Skene); *Scottish Naturalist* (Jan./Feb. 1920), pp. 1-5, portrait (by Dr. James Ritchie); *Royal Society Proc.* (Mar, 1920), xci, pp. vii-xi (by Sir David Prain); *Linnean Society Proc.* (27 May, 1920), 49-51 (by Dr. B. D. Jackson).

MANUSCRIPTS.

Journal of voyage to Parà and travels in Amazonia, 19 September, 1873, to 12 March, 1875.

Bound in three volumes folio. Ff. 185, 323, 228, with a few pen and ink sketches. See above: under 1878, **Brown, G. Barrington.**

Catalogue of specimens collected in the valley of the Amazon in North Brazil, October, 1873, to March, 1875, and presented to the Natural History Museum, University of Aberdeen, in 1875.

Quarto. Pp. 37.

Bibliography of galls.

About 1680 oblong slips arranged alphabetically in three holders.

Scottish botanical bibliography.

About 550 8vo slips arranged alphabetically in two spring binders.

Colour of flowers worked out by Ridgway's "Color standards and color nomenclature." Record begun 7/8/15.

About 280 quarto leaves in spring binders.

Cruickshank Botanic Garden.

Various Notes, Reports, etc.

Autobiographic sketch to 1873.

Forty small quarto leaves in spring binder. Apparently written 1918-19. Greater part printed in present volume, pp. 2-25.

Sources for Trail descents.

Ninety titles of books and magazine articles, with occasional notes, on oblong title slips in spring binder.

Collections on various families of Trail, Scott, Ogilvie, Milligan.

About 300 octavo leaves unnumbered, in spring binders.

Collections on ancestry of Samuel Trail.

Forty-seven large quarto leaves in spring binder. Includes tables of descent (with copious elucidatory notes) from families of Allardes, Annand, Anstruther, Arbuthnot, Ayr, Balfour, Balweary, Barclay (or Berkeley), Beton, Blindseil, Boswell, Bruce, Buchan (rulers of), de Burgh, Callendar, Cameron, Chalmers (de Camera), Cheyne (of Straloch and of Esslemont), Colville, Comyn, Crichton, Cruickshank, Denham, Duddingston, Dumbreck, Dunbar (of Moray and of Westfield), Duncan (King of Scotland), Dundas, de Fawnys, Fotheringham, Fraser (of Philorth), Glen, Grant, Hamilton, Hepburn (of Waughton), Herries (of Terregles), Inglis, Irving, Jerdyn, Kininmonth, Lawson, Liddell, Livingstone,

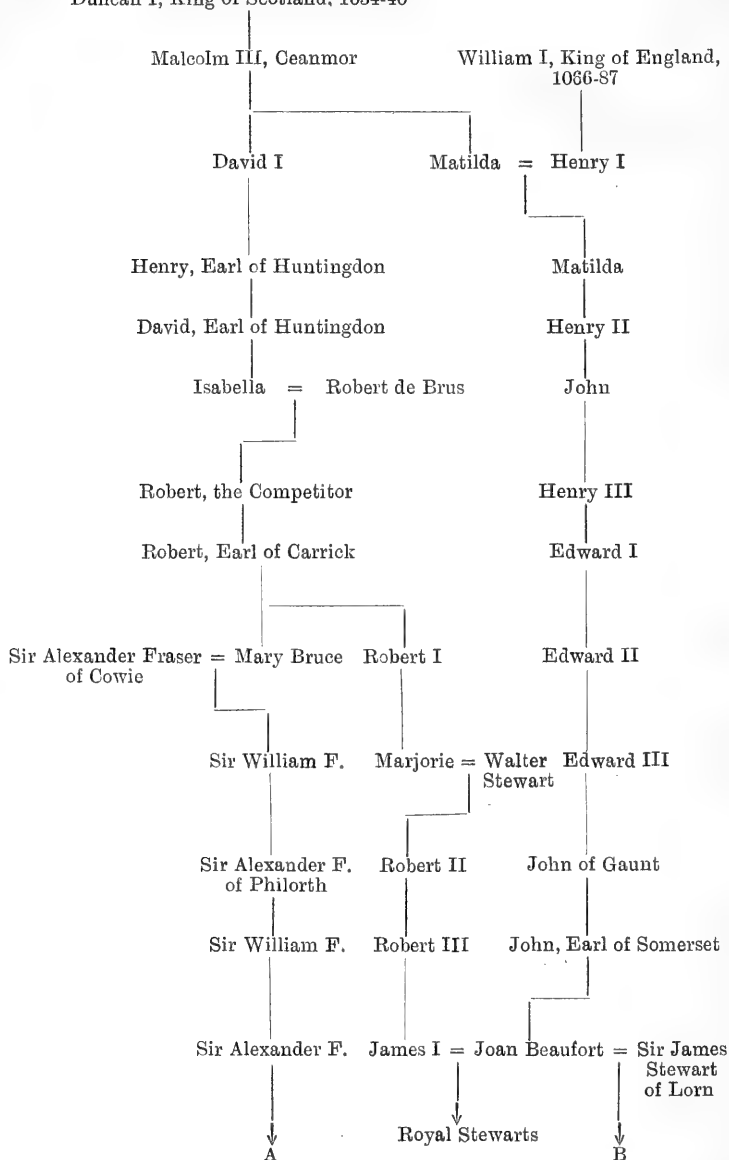
Logan (of Restalrig), Maitland, de Malherbe, Marshall, Mel-drum, Melvill (of Carnbee, and of Raith), Menzies (of Weem, and of Pitfoddels), Monipenny, Myrton, Ogston, Panton, Prat, Reid, Ritchie, Sandilands, Sheriffs, de Soulis, Spens, Strang, Syras, Trail (of Blebo), Wavan.

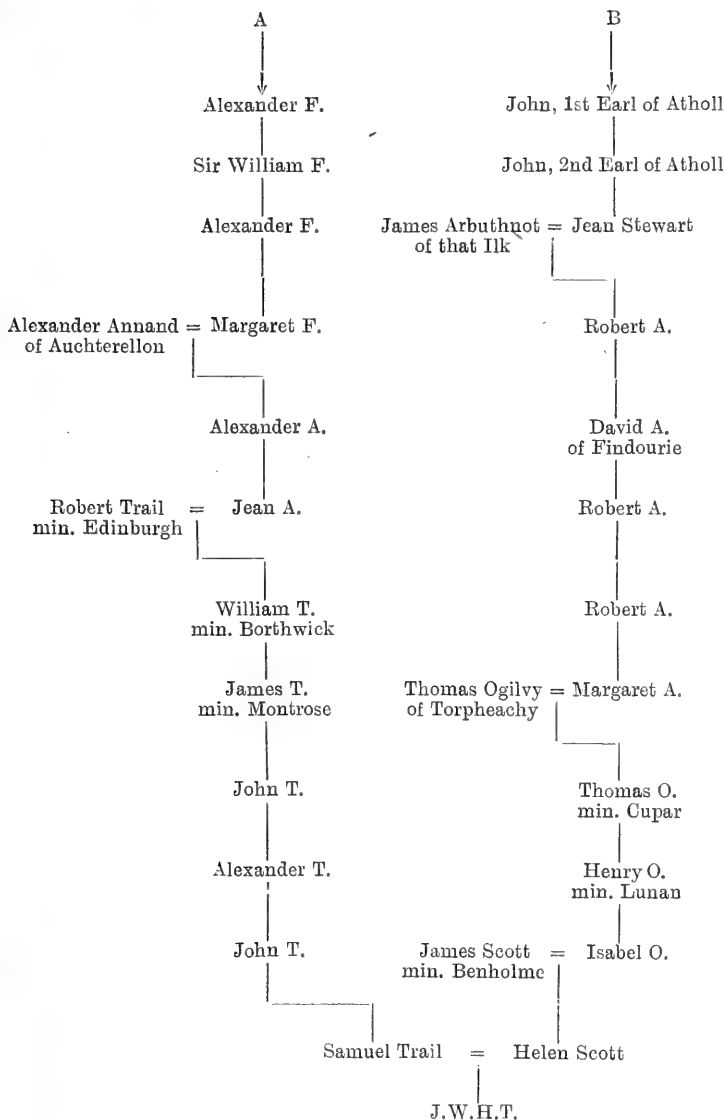
Collections on ancestry of Helen Scott (Mrs. Samuel Trail).

About 900 large quarto unnumbered leaves in spring binders. Includes tables of descent, with copious notes, from families of Abernethy, d'Abetot, Anderson, Ayrton (counts of), Arbuthnot, d'Aubigny, Auchinleck, Avenel, Aytoun, Badlesmore, Balliol, Beaufort, Beaumont, Bernard the Dane, le Bigot, Bisset (of Lovat), Blair, de Bohun, Borthwick, Boyd, Brabant (lords of), de Broose, de Brechin, de Breteuil, Butler, Buttergask, Caithness (Earls of), Campbell (of Menstrie), Carmichael, Carrick (rulers of), Cawdor (thanes of), Chaworth, Chisholm, Clephane, de Clare, Comyn, Corbet, Cranstoun, Crauford, Crichtoun, de Cuningburgh, Denmark (Kings of: from Biorn), Dennistoun, Douglas (of Morton and of Angus), de Downe, Drummond, Dunbar, Durham, Durward, Eglinton, England (Kings of: from Edgar), Erskine, d'Eu (comtes), Fenton, de Ferrers, Fife (earls of), Fitz-Alan, Fitz-John, Flanders (counts of), Fleming, Forbes, Forrester, France (Kings of: from Hugh Capet), Fraser (of Oliver Castle, and of Lovat), de Gael (Earl of Norfolk), Gardyne (of Burrowfield), Gaw (or Gall), Giffard, Glen, Gordon, Graham, Gray, de Gretnesnil, Hainault, Haliburton, Hay (of Erroll and of Yester), de Heading, de Holand, Holland (rulers of), Home, Keith, Kennedy, de Lacy, Lamont, Landells, Lauder, La Zouche, Lennox (rulers of), Leslie, Levingston, Lindsay, Lochore, de Lovain, Lundie, Lyon, MacDonald (of the Isles), MacDougal (of Lorn), MacIntosh, MacLeod, de Mandeville, Mar (early rulers of), Mauduit, Maule, Maxwell, Menteith (early rulers of), Mercer, Mercia (earls of, and Lady Godiva), Moncrief, de Montfichet, de Montfort, Montgomerie, de Moravia, de Mordington, Morham, Mortimer, de Morville, Mure, de Muschamp, Napier, Nassau (lords of: from Everhard), Normandy (dukes of: from Rollo), Norway (kings of: from Harold Harfager), Ogilvy (of Glova, etc.), Ogston, Oliphant, Paganell, Papedy, Pharamond (ruler of W. Franks), Pitcairn, de Quinci, Rait of Rait, Ramsay (of Balmain and of Bamff), Randolph, de Rie, Rose (of Kilravock), Russia (princes of: from Rurik), Ruthven, St. Valeri, de Salisbury, Saxony (dukes of: from Witekind), de Say, Scotland (kings of: from Alpin, through Duncan), Scott (of Balweary), Scrymgeour, Seton, Sibbald, Sinclair, Sinton, Siward (of Northumberland), Smith (Dundee), Speid, Stewart, Stirling, Strachan, Strathearn (earls of), Straton, Thornton, de Toni, Troup, Tulloch, Turnbull, de Valoniis, de Vaux, de Vere, de Vipont, Wales (rulers of: from Cadwallader and Llewellyn), Wardlaw, de Warenne, Warwick (earls of), Wemyss, Wessex (kings of: from Cerdic), Wise, Wishart, Wood, Wyllie.

As an illustration of Professor Trail's method, two genealogical tables are combined on this and the following page.

Duncan I, King of Scotland, 1034-40





FLORA OF THE CITY PARISH OF ABERDEEN.

I. INTRODUCTORY.

CHANGES IN TOPOGRAPHY : HISTORICAL.

DURING several years I have been trying to gain as complete a knowledge as I can of the native and other uncultivated plants that grow within the area of Aberdeen as the City Parish is now defined, with the desire to form a trustworthy record of the flora as it still exists and to trace the changes that it has undergone, in so far as these can be ascertained from actual records or by comparison with existing conditions beyond the city's limits. Even within my personal acquaintance with the neighbourhood very great changes have taken place, leading to the disappearance of some species and threatening others with the same fate ; and reference to the few earlier moderately complete records in existence for the district shows that a somewhat large number of plants actually named as found within the boundaries or authenticated by dried examples, certified as to dates and localities of origin, must be accepted as probably extinct within the city.

The older accounts of the site of Aberdeen prove it to have been rough ground, probably in great part moorland covered with boulders and coarse vegetation on the heights, broken by valleys along the streams, and with a good many swamps and peat mosses in the hollows. Any natural woods were probably soon cut down in the immediate neighbourhood of the town, and such as now exist are the result of intentional planting. The estuary of the Dee, with its broad tidal shores and islands favoured the growth of various plants that are scarcely met with except in such localities.

All this has been greatly changed. Cultivation has left very few traces of moorlands or woods. Stocket Moor was a resort of the students of Botany until about 1880, when it also was brought under cultivation. Of the marshes and peat bogs that figured so prominently in the older maps and descriptions, the only one

referred to fairly often in botanical records was Ferryhill Moss ; but that had ceased to be a moss half a century ago as far as I can learn. The broad estuary of the Dee below the Catlug has been replaced by a narrow artificial channel, unsuited to the plants that tenanted the estuary ; and the formation of the Drive along the Dee has brought about changes on the bank of the river that have reduced the number of plants carried down from the head waters of the river and that grew often for a time at the lower levels. The sand hills and lower ground of the Links have also been much altered especially in recent years, and the flora has been correspondingly affected. The course and banks of the Don have been less changed ; but the materials thrown into the river from the numerous works along its banks have been hurtful to various species of plants, such as pondweeds and others, growing on or in the water. The rapid extension of streets and buildings, especially in recent years, has still more seriously pressed upon the wild flora. It has caused the disappearance from within the City Parish of several species and threatens others with the same fate in no long time.

My first real knowledge of the wild plants in and near Aberdeen dates from my enrolment as a student in the class of Botany in 1869 ; and except during a short break (1873-75) it has been kept up more or less constantly since that year. During this period the environs of Aberdeen have been greatly altered, with consequent changes among the plants (native and introduced), which I have had the opportunity of watching while in progress.

Before referring more particularly to these changes a brief statement of the favourite botanical resorts close to Aberdeen in 1869, chiefly within the City Parish as it now exists, will render more clear their effects on the flora. I shall start at the mouth of the Dee, following the river westward, thence crossing by Ruthrieston, Rubislaw, Hilton, Woodside, and Old Aberdeen to the Don, and lastly passing down the Don to the Links and adjacent ground. Previous to 1869 the Dee below the Suspension Bridge still expanded into a tidal estuary of considerable extent, although considerably circumscribed on the north by the harbour having been cut off from it, the " inches " (or islands) having for years been connected there with the mainland. But a wide expanse of estuary was still subject to the rise and fall of the tide, and possessed an estuarine flora on both its shores. On the south side, Torry Farm was the only dwelling between the old village of Torry

and the Suspension Bridge. West of the bridge a road followed the north bank of the Dee past Ferryhill, Arthurseat, and Allenvale to the Old Bridge of Dee, or Bridge of Ruthrieston. The bank of the river was almost in its natural state, and on it could still be found occasionally plants sprung from seeds brought by the Dee from their native uplands. Near the Craiglug at a recess in the walls that bordered the road past Ferryhill grew *Anthriscus vulgaris*, even then very local and scarce, and with very doubtful claims to be regarded as native.

One of the regular excursions each summer of the students in the class of Botany was made from the Bridge of Ruthrieston along the north bank of the Dee to Cults. This was a favourite haunt of botanical enthusiasts who searched the shingles, the rough tangled banks, and the island (then accessible from the north bank even in summer, only by wading a rather broad channel) below Cults for the alpine plants that could be found near Aberdeen only beside the Dee, sprung from seeds brought down by the river.

Rubislaw Terrace was still almost on the west limit of the city ; and Rubislaw Toll was still in the country, with a country road leading past it to Rubislaw Den, and giving off a branch road on the west to the old quarries. These last were then covered in part with trees, and in part were almost treeless, with pools in some places and in others mounds of rubbish, bare on some slopes, while on other parts they were covered with tangled vegetation. Rubislaw Den and the old quarries were the scene of another of the excursions of the botanical class each summer, and always gave a rich harvest. Near the western limit of the city between the Skene Road and the burn (called lower down the Burn of Rubislaw or the Denburn) lay Stocket Moor, on which one could find the plants distinctive of heaths and of marshy moor. To it and to the woods that bordered it on the south another excursion was made each summer by the class.

North and north-east from Stocket Moor stretched farms with country roads, in many places bordered with earthen walls, which in spring and early summer bore a short-lived but interesting flora of a peculiar type.

On the higher ground to the north the old quarries about Rosehill and Hilton lay much as they still exist, except for the absence of enclosures and of trees around the Hilton quarries. The neighbourhood of Woodside was much as at present, as was also Old Aberdeen, except that both were then separated from Aberdeen

by gaps of considerable width not yet built over. The suburbs of Rosemount and Kittybrewster were little more than begun; and Sunnybank was still a house in the country. To the west of Old Aberdeen on the glebe and behind Tillydrone were extensive mounds of cultivated ground; but the surface there has undergone considerable alteration by the removal of sand, as well as from various sandpits near the Spital and King Street.

The course of the Don remains as it was in 1869, and the banks of the river are changed only by the formation of the Woodside sewer in 1906 and 1907. The water of the Don was even then a good deal polluted; but aquatic plants were still able to grow with less interference from impurities, and with consequent greater vigour. *Glyceria aquatica* had not come as far as Persley down the river.

The Links south of the Broad Hill had before 1869 been almost brought to their present condition except along the sea-front near the Bathing Station, and the characteristic plants still grew on various parts of their surface. To the east of the Broad Hill and as far as the Don the surface lay almost unchanged since the last alteration of the mouth of the Don in 1727. Along the coast extended a rugged belt of sand hills or dunes, narrow opposite the Broad Hill, and broken just north of this by a rather wide gap, through which the waves were sometimes driven when high tides occurred during gales from the east. Beyond this gap (which there is evidence to suggest had been the mouth of the Don in 1521) the dunes widened northward, their outer range being liable to alterations of form as the sand was drifted away or piled up in storms. The sea-front of the dunes had little more than a belt of loose sand along the foot, on which sea-rocket (*Cakile maritima*) was not rare, and where one might also find occasional plants of Saltwort (*Salsola Kali*) and of Babington's orache (*Atriplex Babingtonii*). The lyme grass grew in frequent scattered tufts or patches, but did not form a belt such as now protects most of the sea-front so effectively against encroachments of the sea. The dunes were left to the sculpturing of the weather, and bore only the vegetation distinctive of such localities.

To the west of the dunes, on the low ground extending from the Broad Hill to the Don, it was still possible to recognise the former course of the Don, although the "Canny Sweet Pot" of earlier times was represented only by two shallow pools near Linksfield, through which ran a small stream to join the Tile Burn, formed by the

Powis Burn and other streams flowing through Old Aberdeen, and even then somewhat the dirtier in consequence though still comparatively clean. The surface of the Links was left almost unaltered, although a little golf and occasional games of cricket or football were played on it. The only shooting range had the targets placed in the gap already referred to.

Between the Broad Hill and the Gallowgate lay few houses, the Barracks and Lady Mill long remaining almost the only buildings between Nelson Street and School Road. The Old Aberdeen Links bore a distinctive vegetation which formed the object of one of the excursions of the botanical class in each summer.

There were no parks or other pleasure-grounds then belonging to the city. The municipal area of Aberdeen was still very much smaller than the parliamentary area. A very brief consideration of the present condition of the city, even if limited to the most noteworthy matters, shows how great and far-reaching have been the changes effected since 1869. Various extensions of the municipal area have resulted in its becoming the same as the parliamentary area north of the Dee. The boundary now extends from the mouth of the Don up that river to Persley, and thence along an irregular western boundary to the Dee a little west of the Bridge of Ruthrieston, and along the Dee to the Suspension Bridge. From that bridge eastward a strip of Kincardineshire has been added to the city, including Torry, and extending to the South Breakwater. The flora of this enlarged area forms the chief subject of this record, although a comparison is made with the floras of the adjacent parishes in order to render more evident the changes that have been brought about among the plants within the City Parish.

In 1869 the work was begun of cutting a new channel for the Dee from a little below the Suspension Bridge through the low ground on the south bank of the estuary almost as far as the fishing village of Torry; and this work was completed in 1872, when the Dee was turned into the new channel, and cut off from the upper end of the estuary. Market Street was continued southward to the new channel by an embankment across the estuary, the part of the old channel to the east being converted into a harbour for fishing vessels, and all to the west being gradually filled up with town refuse of a very mixed sort. During several years this part was in a very rough state, with pools and heaps of rubbish intermingled. As it was constantly receiving new deposits of rubbish

and lay unfenced the plants that sprung up on it seldom survived to maturity, and I have notes of but few plants observed on it during this stage. After the surface had been brought to a nearly uniform level streets were marked out upon it, and seven or eight acres beside the railways were secured for the extension of the Railway Station. This ground was inclosed in part by new buildings, including flour mills, and in part by a fence sufficient to exclude all unauthorised persons. On this ground grew up a strange medley of native plants and of aliens, which for a few years were left almost undisturbed to settle the struggle for existence as they might. By the kindness of the railway authorities I was allowed free access to this ground, and in 1893 made a careful census of every species I could detect there in numerous visits. I repeated this year after year until the extension of railway lines had made the ground unsuitable for the growth of plants; and I gave an account in the "Annals of Scottish Natural History" of the course of the struggle among the numerous species.

On the native plants that frequented the muddy shores of the estuary of the Dee the effect of the change was disastrous, as the new channel offered no suitable homes to replace their former habitats by the tidal part of the river, and certain species perished locally. The operations of forming the carriage-way by the Dee and replacing the rough bank of the river to a considerable extent with stone deprived other scarce native plants of their local refuges. The walk from the Bridge of Ruthrieston by the Dee to Cults was closed to the public about 1880. Stocket Moor was broken up and cultivated about 1880, and moorland and swamp plants almost (or altogether in the case of several) ceased to grow in Aberdeen. The city continued to stretch out new streets rapidly to the west and (less rapidly) around the other sides, and the plants that grew by fields and hedges, and on waste-places near farm-houses became more and more circumscribed, especially about Rubislaw. As the streets approached Rubislaw Den the freedom of access to it had to be restricted, and it also ceased to be visited by the botanical class. The old quarries were invaded by streets, after the holes had been filled and the mounds levelled; and it has become difficult to trace in that quarter the haunts of former botanical rambles. As already stated, the changes have been less near Woodside and Old Aberdeen; but even there they have been considerable, and appear likely to be greater in the future.

On the Links from the Bathing Station northward the altera-

tions have been such as greatly to change the natural conditions over much of the surface. Around the Bathing Station the sea-front was altered by the erection of walls and the formation of a road across the Links to the Station. The low ground to the east of the Broad Hill was covered with cinders to form a football field ; and the slopes around it were smoothed and sowed with grasses. About 1900 a carriage drive was begun from the Bathing Station, over the dunes towards the mouth of the Don ; and for some years the town-refuse was employed to fill the hollows among the dunes and to form the roadway and slopes from it to the west, and also another road at a lower level on the sea-front. The gap a little north of the Broad Hill was thus closed by a broad embankment ; and the irregular contour of the dunes was replaced, as far as the boundaries of Seaton Links, by an unbroken line of roadway. The Drive having been carried as far as the authority of the Town Council extended, the refuse in 1904 had to be disposed of elsewhere ; and for the next three years most of it was deposited on the west side of the Links between Linksfield and East Seaton, on a large piece of low ground liable to occasional flooding, which was thus raised and converted into another football-ground. The rubbish employed in these operations may in some distant period afford relics to some ardent antiquarian exploring the ruins of Aberdeen, though I fear his prizes would represent our present civilisation in but a sordid light.

But other changes have also been made on the Links. The ranges for small-arm practice have been transferred to the northern half ; and butts have been made on the dunes in various places, involving cutting up the turf to a considerable extent, and limiting access a good deal. The low ground between the Broad Hill and the road across the Links from East Seaton has been altered in many places in the interests of golfers. The whins and other rougher vegetation have been cleared away and putting-greens formed, the pools have been filled up with earth, and the small stream turned into an underground drain. The Tile Burn has for a number of years been little better than an open sewer, with a rank growth of docks and other coarse vegetation along its sides. The low part of the Links from the Don to nearly opposite Linksfield is still liable to be flooded with slightly brackish water during high tides, and it still bears several species of wild plants not found elsewhere in this district ; but for a long time turf has been cut from parts of it for lawns or gardens. It seems probable that, as

the Town Council has recently acquired control of the Links as far as the Don, the Drive will in a few years be carried along the whole length of the dunes, and then continued westward, along the Don, by an embankment across the low bed of the old channel of the river, shutting out the tides, and preventing the periodical flooding of the low ground. When that is done several of the species that still find a refuge there will cease to exist near Aberdeen.

As a result of these changes in the environment of Aberdeen the flora has been very markedly affected since 1869. There are not now any such localities for botanical excursions within the Parish as then existed. Several species of plants have locally ceased to exist, and others have been brought very near the same fate; while many more have had their range and abundance greatly reduced. During the same time many immigrants have been observed, and a few have gained a permanent hold. The rate of change has probably been more rapid within these years than at any previous time. Interested in what I had witnessed, I have sought to trace the alterations that the flora of the city and its neighbourhood had undergone before 1869, and have been able to ascertain that they must have been considerable; but the records are far from complete; and I have often had occasion to wish that there had been in existence a good account of the plants of the district previous to 1750, while Aberdeen was still a small town near the Dee, with the estuary little if at all altered by man, and while the country lay around it under loch and marsh and heath almost up the Gallowgate and the Denburn. I have found how difficult it is to determine clearly the former conditions; and I have thought that a carefully prepared account of the flora at the present time, of the alterations in it observed by myself, and of what I have been able to learn of its past history might be of use to local botanists and of greater interest and helpfulness to others in future years, when it might serve in some degree to help in measuring the extent and rate of further changes, whether in the reduction of species or in the arrival of new immigrants.

Before entering on the more detailed consideration of the flora of Aberdeen and its vicinity a short account may be given of the physiography of the district, of the natural conditions (so far as these can be traced), before their alteration by man, and of the changes brought about by him.

The low hills south of the Dee, which form the eastmost exten-

sion of the Grampians and terminate in the rocky coast of Kincardineshire, and a considerable part of the other rocky elevations near the city consist of gneiss, or of quartzites in places; but through the gneiss granites have broken in veins, as on the coast about Girdleness, or in great masses. These granites, over a tract of more than 7 miles by 3 or 4, form low hills extending from Rubislaw northward over the western half of Aberdeen Parish and the greater part of Newhills and Dyce, and across the Don into Oldmachar and Newmachar. In this area are numerous valuable quarries, from which Aberdeen has been largely built, while much stone has been exported. Within the city borings for wells have shown the presence in a good many spots of a non-fossiliferous deposit of old red sandstone age; and there is a small outcrop of this on the south bank of the Don a little way below the Old Bridge of Balgownie.

The valleys of the Dee and the Don converge near Aberdeen, their mouths at present being a little over two miles apart. These valleys are roughly parallel in great part of their course, the rivers lying from ten to fourteen miles apart, separated by hills which are largely granitic. For some miles from Aberdeen the valley of the Don is the narrower of the two. Within a mile of the sea both rivers have cut their way through rocks, bending away to do so from what would appear the easier as well as more direct course. The valley along which the railway passes south near the Bay of Nigg suggests itself as the former channel of the Dee, blocked in some past revolution of nature. North of the Cathedral of St. Machar, at the foot of the bank, is a low belt stretching eastward to the sea, yet the Don bends away from this apparently natural line to cut its channel seawards between steep, and in some places precipitous, rocky banks.

It does not seem possible to trace any relation between the composition of the rock masses near Aberdeen and the vegetation on the soil that covers them. Bare rocks are not often met with except in the cliffs of the coast and in ravines. On the lower hills and moors, the rocks are covered with a varying thickness of soil intermixed with stones, many of which are of great size. Except the surface layer of peaty moor, and the deeper deposits of the peat mosses, the covering of the rocks shows itself to have been ice-borne, often from distant localities, where the glaciers had been formed. The subjacent rocks have rarely supplied the soil lying on them. When the soil is removed the rocks in some places still

show very clearly grooves cut by the stones forced over them by the ice. The debris left by the glaciers is composed of various soils, so mixed as no longer to represent the product of one kind of rock; and it often gives good soil for agriculture if cleared of the many stones with which it is apt to be encumbered. The difficulty and expense of preparing the ground for agriculture in much of the district may in some degree be realised when one sees the enormous walls, 10 or 12 ft. thick, formed between the fields to remove the stones out of the way. Excellent examples of these "consumption dikes" exist in the country a few miles west and south of Aberdeen; and in the same districts may be seen ground still untouched, in almost the same state as that from which a very large part of the agricultural land from Hilton through Rubislaw to the Dee was brought since 1750.

Streams in the past cut their channels through the glacial debris, and often formed swamps in the hollows, with occasional pools or lochs, such as the lochs of Aberdeen and of Old Aberdeen. These pools were always shallow, and probably were more or less surrounded by tall grasses, sedges, and numerous other kinds of plants. In many hollows, and even on damp slopes, peat was formed, often to a considerable depth. It still exists in many places in the city, *e.g.* in the old lochlands between the Gallowgate and the Infirmary, on the slope where Marischal College is built, in West North Street, etc.

Along the coast from the Dee to beyond the Ythan extend great accumulations of sand, which close to the sea form a belt of dunes of varying width. On this belt the sand in places is still bare and drifting before the wind; but now there are few such places of any notable extent to the south of the Ythan. The sand is kept from drifting on the dunes chiefly by grasses, such as the marram or sea bent-grass, the couch grasses and sand fescue, along with such plants as meadow-rue, kidney-vetch, and bird's-foot trefoil. On the foreshore the lyme-grass has become a most efficient barrier against inroads of the waves. During the winter much sand is at times drifted up from the beach over the vegetation of the dunes, but it is held on them, and becomes covered by the new growth in spring and summer. The dunes on their more gradual inner slope are covered with turf formed of grasses and wild flowers of varied form and hue. Behind the dunes from the Broad Hill to the Don extends the flat Links, low and liable to be flooded by brackish water at high tides in much of its northern

half. The Don has more than once flowed southwards over parts of the Links even in the last four centuries. West of the Links the surface is undulating, the heights being formed in part of sand and in part of glacial deposits. Numerous sandpits have been opened and the more valuable deposits of sand removed, leading to considerable alterations of the surface contour. The drainage of the numerous marshes that occupied the hollows, the frequent filling up of hollows, and the consequent disappearance of some of the streams, have also had results that make it difficult to recognise several of the local features shown in the map which bears the date 1661, prepared by Parson James Gordon of Rothiemay, at the request of the Town Council of Aberdeen.

Apart from the small surface then occupied by Aberdeen and Old Aberdeen, the contour appears to have remained in its chief features much as it was in prehistoric times. From the description we learn that fields extended for about a mile around the two towns (over an area much less than is now covered by streets); but even among the fields lay marshes, and the two lochs; beyond them extended a wide belt of rough stony moors and swamps that hindered free communication with the rest of the country. The Dee still expanded into an estuary, broken up by "inches" or islands into several channels, of which the one nearest the north shore, though narrow, was used as a harbour, access to which, even for small vessels, was wholly dependent on the state of the tide. Into the estuary flowed several streams, bordered near their mouths by marshes. Of these streams the Denburn was the most noteworthy, as a high and rough bank (the Corby Heugh) on its west side prevented the expansion of Aberdeen in that direction until the formation of Union Bridge.

It would be idle to conjecture who were the earliest settlers on the site now covered by Aberdeen, or whence and when they came. No doubt they were attracted by the advantages offered by the estuary of the Dee and by marshes and woods of the neighbouring country, which would afford protection from attacks of enemies and scope for hunting and fishing. Cultivation of the soil was probably not practised in the early periods, and to only so slight an extent in prehistoric times as scarcely to have affected the natural features of the country. The chief effect on the vegetation during this early period was probably the clearance of thickets here and there in places suitable for dwellings, and the cutting down of trees for domestic uses or to form rude boats. Occasional

fires also may have thinned the woods, whether by intention or by accident. It is not unlikely that the use of vegetables and fruits as food had led to the wider dispersal of useful species ; but this would be only to a limited extent, and of species native in or near the region. It has been conjectured that the earliest settlement was made on the north shore of the estuary (somewhere about the foot of Market Street or between that and the Railway Station), where the mouths of the tributary streams would give a safe retreat for boats or canoes.

Of the beginnings of agriculture in this part of Scotland no records exist. Probably the Roman occupation of Southern Caledonia indirectly influenced and aided the progress towards civilisation of the northern tribes, and led to the diffusion among them of useful plants cultivated by the Romans ; and mixed with seeds of cultivated plants would certainly come seeds of weeds of cultivated soil, so that not improbably some of these immigrated into Aberdeenshire as long ago as the Roman period in Scotland. A greater stimulus must have resulted from the settlement among these northern tribes of the followers of St. Columba who brought with them a better knowledge and practice of agriculture, and must also have helped to diffuse the plants then considered worth cultivation. Even during the Roman dominion in Britain the coasts were frequently harassed by attacks of raiders from the races occupying the continent of Europe north of the Roman dominions, and these raids continued for several centuries. On the coasts of Scotland they were chiefly due to Scandinavians, and were continued well within the historic period. It is recorded that "Aparidion" was burned by a Scandinavian freebooter as late as 1153 A.D. Such attacks must have greatly checked progress, yet that they may have introduced new plants also is shown by fruits and seeds found in recent years in a viking ship disinterred from a burial mound in Southern Norway.

Scarcely had the attacks of these foes ceased when the long continued wars with England began ; and the north-east of Scotland for a time had its share in these troubles ; and also it suffered from domestic feuds that greatly hindered advance in peaceful arts, including agriculture. From the earliest authentic records of the history of Scotland it appears that Aberdeen held a relatively high rank among its ports, a rank due to the very small trade of all Scotland by sea rather than to the size of the town or the quality of its harbour, which was difficult and even danger-

ous of access, and absolutely open to the ebb and flow of the tides.

Among the earliest definite notices of the environs of Aberdeen are references in the records of the Town Council. Thus in 1507 it is enacted that the "litsters sall weshe all thair claiss at the burne passand fra the west end of the Loch to the Dene Burn, and that nane sall wesche thar stuff in the Loch." In the Council Register of Aberdeen in 1521 "scaups" or mussel-beds are mentioned as "at the north watter besyd the Cunnigar hillis." As the name Cunnigar Hill still survives for the mounds of glacial deposits and sand west of the Broad Hill, and as the "north watter" was evidently the Don, that river appears in 1521 to have flowed through the Links until deflected eastward by the "Cunnigar hillis," to enter the sea probably by the broad gap in the sand dunes still traceable a little north-east from the Broad Hill, but recently crossed and almost filled up by the Drive made along the coast.

Spalding in his gossipy "Memorialls of the Trubles in Scotland and in England, A.D. 1624-45," incidentally relates, under 1641, "It is heir to be nottit that no mawis" (black-headed gulls) "wes sene within the Lochis of New or Auld Abirdeins since the beginning of thir troubles and coming of soldiouris to Abirdein, who befor flokkit and clekkit in so gryte aboundans that it wes plesour to behald thame fleing aboue our heidis, yea and sum maid vse of thair eggis and burdis. In lyk maner, few or no corbies sen in either Abirdeines at the wateris syd of Die or Done, or schoir, guhair they wont to flock abundantlie for salmound govries."

In 1643 the magistrates of Aberdeen considering the prejudice done to the grass of the Loch by the daily resorting of the geese belonging to sundry of the inhabitants, ordained the bellman to be presently sent through the town, charging all the inhabitants to remove their geese out of the said Loch.

On 14th May, 1646, the Marquess of Huntly advanced towards Aberdeen, and drew up his force on a heath to the north of the Loch, "within two musket-shot of the burgh." Professor Terry informs me that at that time the extreme range of a musket was about 600 yards, but its effective range only about 120 yards. The heath on which the force halted probably lay around or a little south from where Kittybrewster Station now is.

Gordon's map of Aberdeen (1661) makes it evident that even at that date "New Aberdeen" spread over only a small area, and that even of that area, less than one-half was covered with buildings

or streets. Of the latter the chief line was made up of the nearly continuous Shiprow, Broad Street, and the Gallowgate, extending from the north shore of the estuary of the Dee, at the harbour along the low ridge to the top of the hill along which the Gallowgate runs. Houses surrounded "St. Katherine's Hill" between the Shiprow and the Green. The other chief streets then were Castle Street, the Netherkirkgate, the Upperkirkgate, and Schoolhill. Along the outlet to the south extended the Green or Bow Bridge Street as far as the Den Burn, which was crossed by the Bow Bridge. Futtie Wynd ran south-east along the base of the Castle Hill, Futtie being then a village of rather more than twenty isolated cottages beside the estuary "inhabited by fishermen and mariners for the most part." On the south shore of the estuary lay the village of "Nether Torry," of about the same size and condition as Futtie, which survives still as "Old Torry."

The houses along the chief streets are all shown in Gordon's map to have gardens or orchards behind them; and a view of the town from the south-west shows numerous trees on the slopes of the ridges along which the chief line of streets run, while the "Descriptio" asserts that "many houses have their gardings and orcheyards adjoyning; every garding has its posterne, and thes are planted with all sorts of trees which the climat will suffer to grow, so that the quholl town to such as draw neer it upon some syds of it, looks as if it stood in a garding or little wood."

Old Aberdeen is represented with College Bounds, High Street, Chanonry, and the south part of Don Street, much as they still exist; but with gardens and orchards behind the houses, there being no houses behind those on each side of these streets. The distance between the towns "is ane English or Italiane myll, towards the north. The distance betwixt the twa corses" (crosses) "of the two towns is reckoned justlie a large Scottish myll."

"The feilds nixt to the gaits of the citie are fruitfull of corns, such as oats, beir, quheat, etc., and abounds with pastures; but anywhere after you pass a myll without the toune, the countrey is barran lyke, the hills craigy, the plains full of marreshes and mosses, the fields are covered with heather or peeble stons, the corne feilds mixed with thes bot few. The air is temperat and healthfull about it; and it may be that the citizens owe the acutenes of ther wits therunto, and ther civill inclinations, the like not easie to be fund under so northerlie climats, damped for the most pairt with air of a grosse consistence.

“The street which is called the Gallowgait is hemmed in upon the west by a large fenny marrish, commonlie called the Loch, a fenne or pudle rather. Ther comes a brook unto the marish, which bruik is kept in by dammes and bulwarkes. This brook encompasseth the loch and drensheth it.

“Upon the east syd of the citie and of Futtie ther lyes many fair feilds, fruitfull of corns, quheat, bear, oats, pease and pot-hearbs and roots. These are marched by the feilds near the sea syde called the Lynks. . . . The Lynks extend themselves almost betwixt the two rivers of Done and Dee. Heer the inhabitants recreat themselves with severall kinds of exercises, such as football, goffe, bowlling, and archerie. Heer lykeways they walk for ther health. Next to thes is the sea shore, plaine and sandie; where at low water ther is bounds for horse races no less then two mylls of lenthe.

“Old Aberdeen is enclosed with little hills, pleasant corne feilds, very fruitfull, and with pastures mixed amongst the ploughed feilds.”

The map shows the two towns, between the estuary of the Dee on the south and the bend of the Don near the Cathedral on the north, the Links as far north as Powis Burn, and a narrow strip to the west of the towns, the most notable feature in which are the very few houses that lay outside the towns, and “the Loch of Old Aberdeen,” a round sheet of water in the hollow west of the Botanic Garden, its diameter at least equal to the length of the Chanonry. Besides “the Marrisch called the Loch,” which extended as an irregular quadrangle, of nearly equal sides, between the sites of Loch Street and the Infirmary, other “marisches” of considerable size are marked in the ground between occupied now by Causewayend and Broadford. The “Denn Burn” lay a little distance west of the town, and beyond it rose the steep “Corby Heugh,” apparently precluding extension of the streets westward. Between the “Broade Hill” and the “Spittall Hill” are shown a number of heights, the “Gallow Hills,” on one of which stood the “Gibbett.” The hollows among these were occupied by marshes; and a fairly large marsh filled a part of the hollow between King’s Crescent and King Street, now nearly filled up.

North of the Gallow Hills, between the Links and the fields lay a broad pool half a mile long, its north end widening into a round part, called “The Loch.” The long pool was called “Canny Sweet Pot,” and on the map is an inscription “the River of Done

is said Credibly to have runn through the Loch of Canny Sweets pott of Old and thence to have turned its streame eastward entring y^e sea under the Broad Hill." A small scale map of the neighbourhood of Aberdeen, which forms an inset on Gordon's map shows that in 1661 the course of the Don below the Bridge was almost as it exists at present, that is running in almost a straight line eastward to the sea, but Powis Burn (or the Tile Burn, as it has been called for many years) is shown as running directly east to the sea, instead of turning north to the Don.

A map issued in 1746 by G. & W. Paterson, under the title "A survey of Old and New Aberdeen with y^e Adjacent Country between y^e Rivers Dee and Don," and reproduced in the quarto edition of Orem's "Old Aberdeen" issued in 1782, gives the impression of care and accuracy except that, evidently in order to provide room in the corner for the ornamental border around the title, the estuary of the Don is deflected southward, bringing its mouth almost due east of King's College, contrary to what is known to have been the course of the river after 1727. A larger extent of the surrounding country is shown than in Gordon's map, especially west of the town, including the greater part of what now forms the Parish. Old Aberdeen is shown in this map almost as by Gordon; and New Aberdeen shows hardly any enlargement, although a few houses not indicated on Gordon's map are scattered along the chief roads to the south by Bridge of Dee and north to "Inverury." "Futt Dee" was still a straggling village quite apart from Aberdeen. There was a marsh on the low ground now occupied by the Bannermill, from which flowed the "Stank of Pow Burn" falling into the estuary west of "Futt Dee." West of the Broad Hill was the small "Broad Hill Loch," probably a shallow pool liable to disappear during droughts. Along "Canny Sweat" and its burn and Powis Burn is shown a considerable surface of "fenny ground," extending to the Don, into which the burns are shown entering separately; but, as already noted, reliance cannot be placed on this part of the map. A large marsh appears on the low ground from Ladymill northwards along and east of the situation of King Street now. To the west of Old Aberdeen still lay the Loch, much diminished, but bordered by a large marsh on the west side. "Sunnyside Moss" occupied low ground west of College Bounds and the Spital. The marshes west of Causeway-end, or the "Road to Inverury," are replaced by "Broadford Meadow Ground." The "Loch of Aberdeen" appears only as a

narrow pool along the west base of the Gallowgate Hill. In the "Ferrie Hill" district the mouth of the burn from Hazlehead and the estuary of the Dee were bordered with swamps. The "Bogg of Old Ferriehill" lay near the Dee; and the almost square "Bogg of Ferriehill" was "a large morass from whence they dig Peats to supply y^e cities with Fuell." This morass was drained fifty or sixty years ago, and several species of water plants then ceased to exist within the limits of Aberdeen Parish, as now defined. Other marshes also appear on this map, such as the "Round O" in Ferryhill, marked as a quagmire, two marshes near the Burn of Pitmuxton, a considerable extent a little way to the west marked as "the boggs, fenns and marshes of Pitmuxton," and near the Bridge of Ruthrieston a large swamp through which flowed a stream that entered the Dee a little way below the Bridge.

Cultivation appeared to have made little progress around Aberdeen between 1661 and 1746. In the map of the latter year the "Road to Alford" is shown passing Gilcomston, Loanhead, and Stockethad, between mounds which cover the surface to the Denburn; and a note on the map states that "these Mountains abound with great heaps of stones, collected together in different places, for what purpose is uncertain." Around the houses of Rubislaw and Couperstoun lay fields; but to the west and south of Couperstoun was a tract known as "Foul Moors," no doubt so-called because of its roughness. To the west of Rubislaw the map bears the inscription "marshes and great stones, then chains of Mountains that stretch to y^e Western Ocean."

Until about 1750 the cultivation of the ground appears to have extended only a little way from the town, which covered only a small area, and the description by Gordon was still accurate: "After you pas a myll without the towne, the countrey is barran lyke, the hills craigy, the plains full of marreshes and mosses, the feildes are covered with heather or peeble stons, the corne feildes mixt with thes bot few." We may still see ground almost as described by Gordon at a little distance from Aberdeen in the neighbouring parishes such as Nigg, Peterculter, and Newhills, and can thus gain a fairly clear knowledge of the environs about a hundred and fifty years ago, from "a myll without the toune," over much of what is now covered with streets.

The change began about the middle of the eighteenth century, probably stimulated by the settlement of the political unrest that had prevailed so long in the north-east of Scotland. A very

interesting small book by Francis Douglas, published in 1782 under the title "A Description of the Coast from Edinburgh to Cullen," throws much light on the course of events near Aberdeen. He describes a ride "to see the late improvements in this neighbourhood, which are so extraordinary that I shall be able to give you but a very imperfect idea of them." Setting out with a friend from the south-west side of the town they passed along by the Denburn through the village of Gilcomston. "Here," said his friend, "till 1756, there was a single farm house. This and the two adjacent farms were let to three tenants, two of whom became insolvent." Not wishing bankrupt tenants, the Town Council feued the land in small lots. Soon a "fine village" sprung up, and the land was well cultivated, the use of rye-grass and clover seeds having been introduced by Provost Alexander Robertson of Glasgow a few years before. The state of the fields previously is described as "much of them quite soured by stagnant water; in some places so full of large stones that it was perilous to put a plough into them; in others, overrun with furze, and all of them constantly cropt without any, or with a very small quantity of manure."

The rent rose from an average of 7s. per acre to from £2 10s. to £4. The expense of clearing off the stones amounted to £30 per acre; but much of it was repaid by selling the stones, for which as much as £25 per acre was obtained. "Much of this ground was feued out by Mr. Skene of Rubislaw, and, though never before worth 6d. per acre, now yields his heir between fifteen and twenty shillings, some of it more. Within the last forty years the value of this estate has increased from about fifty pounds a year to near six hundred."

"To the north and west" (of Loanhead) "is a large tract of improved ground, formerly the town's common pasture, which, since the beginning of this century, has been feued out by the community, at a small quit rent per acre. In the bottom are many bleachfields, made out from swamps and morasses. From Loanhead we turned due west, and ascended an eminence called the Stocket-brae, the under part of which was feued out by the town about thirty years ago. Eighty-two acres, thought unimprovable, were reserved to be planted with Scots firs, and accordingly were inclosed and planted, but have since been feued out and made arable." "When we reached the summit of this little hill, an extensive, but wild prospect opened to the west and south-west, in

which little was to be seen but heath and moor, except on the north side of the road, where some feuers have made out a great many fine inclosures. It is perfectly astonishing to see the crops of grain and grass produced by ground, which, for so many ages, had been neglected as unworthy of culture." "The lands of the village called the Spital, between New and Old Aberdeen, have been considerably improved of late, by George Moir, esq. of Scotstown, the proprietor, who has gained a great deal of ground from the links, or benty lands, towards the sea."

"On the north-west of the town, contiguous to Gordon's Hospital, there is a bottom of rich land, where in former ages a loch or large pond of stagnant water stood. This loch was drained by the inhabitants; and the remains of it on the east are confined as a reservoir for driving some mills within the town."

"The lands of Ferryhill lie on the banks of the Dee, a little south and south-west of the Hardgate, and till about twenty years ago, that the Community feued them out, were possessed by two tenants who exceedingly neglected them. They chiefly consist of little conical hills, which were generally over-run with heath and furze, while the flat bottoms between them were drenched with stagnate water. The tenants, who rented them low, kept their best grounds in constant tillage, and never once thought of improving the more ordinary. When these farms were feued out, they fetched a great advance of rent, and fell into the hands of several proprietors." "On the west and north-west of Ferryhill lie the farms of Pitmuckston and Ruddrieston, on both of which great improvements have been made; though the soil, especially of the last, is very unpromising. Contiguous to these farms lies a great deal of ground, feued out from Mr. Skene of Rubislaw, which certainly requires all the courage, patience, and perseverance of an Aberdeenshire improver."

It is possible in the considerable series of maps that have been issued during the last 150 years to follow the extension of the cultivated lands and their replacement, at a rate continuously more rapid until a few years ago, by streets, especially on the west side of the town. In 1790 streets began to encroach on the old site of the "marrisch called the Loch," and covered the greater part of it in a few years. In 1838 the Loch was reduced to a stream three feet wide, conducted in a covered channel to turn the wheel of the flourmill near St. Nicholas Street; and in 1865 that stream was diverted at the west end of Loch

Street, by another covered channel, into the dam of Broadford works.

In 1800 an Act of Parliament authorised the laying out of Union Street and King Street. The formation of Union Bridge has resulted in the extension of Aberdeen west of the Denburn, or rather of the high bank on its west side, which had until then appeared to bar the way. But the city has extended widely also in other directions, and has absorbed the smaller communities around it, of which the largest are Old Aberdeen and the young borough of Woodside, both of which are now connected with Aberdeen by continuous streets. Among other changes that greatly assisted the extension of cultivation and the growth of the city must be reckoned the improvement of the means of transit. At one time the access from the south was by little more than a bridle-path, which led through miles of heaths, and in places was almost impassable in wet weather because of the peat-bogs. Bishop Elphinstone at the close of the fifteenth century made the difficulty and danger of the journey from Aberdeen to St. Andrews or to Glasgow a strong argument in support of his request for authority to found a University in Old Aberdeen. It is unlikely that the roads in other directions were then much better than bridle-paths; but here as elsewhere the improvement of means of communication went on, the roads being improved and extended in every direction. Between 1796 and 1807 a canal was formed between Aberdeen and Inverurie, the water for it being drawn from the Don. Besides its value as a means of transit the canal was noted as a habitat of many of the native water-weeds, and is often mentioned in this connection by Murray, Cow, and Dickie. Unfortunately it was unremunerative; and when it was proposed to form the railway from Aberdeen northward the promoters of the company bought the canal, and converted its bed in great part into the new railway; though a few portions of the canal are still traceable between Dyce and Kinaldie. A relic of it exists in Aberdeen in the Old Boathouse north of Kittybrewster beside Great Northern Road, the place where passengers from Aberdeen and Old Aberdeen used to join the flyboat above the locks.

Among the most noteworthy effects of the extension of agriculture and of the other changes described above was the rapid diminution of the moors and swamps that before 1750 had so abounded in the inland part of Aberdeen. With them a good many native

plants tended to disappear or to be restricted to very limited areas.

The changes undergone by the rivers Dee and Don near Aberdeen have been briefly referred to above ; yet a rather more full and systematic account of these in historic times may not be out of place, since they have led to considerable changes in the local flora.

The Dee after passing through the rocky barrier at the Catlug, on which the Suspension Bridge has been built, expanded into a relatively broad estuary, broken up by islands, some of which (the inches) rose above even the highest tides, while others were covered during part of every tide. The low shores of these islands, as well as of the estuary and of the tributary streams that opened into it, offered wide expanses of sandbanks and mud, suited to the needs of estuarine plants, and were bordered with marshes, probably much like the estuary of the Ythan or of the South Esk at the present time. Several maps, at various dates, from Gordon's in 1661 onwards, show that the islands and channels in the estuary were liable to considerable alterations by river-floods and storm-waves ; but the north channel, past Futty, used as the harbour of the small town retained its form with little change ; and the mouth of the estuary also remained as a narrow outlet, shut in between the rocky south shore and the accumulations of sand on the north, drifted up from the sea, and forming a series of dunes which protected the harbour on its east side from inroads of the sea. Across the mouth of the river the sand brought down by river floods and that washed up from the sea formed a bar, on which at ebb tide the depth might at times scarcely exceed one foot. Access to the harbour was thus rendered dangerous ; and the risk was increased by the presence in the navigable channel of the river of a large stone, which led to occasional disasters. This danger was removed in 1618 by the noted David Anderson or "Davie do-a'-thing," who is said to have lifted it with the aid of empty casks from its bed and floated it to a place in the estuary where it could do no harm. The harbour itself was merely a convenient channel, where vessels could lie under shelter, and out of the chief current of the river, which lay nearer the south or Torry side. In the harbour the vessels must have lain on the mud at low tide. It is uncertain when the first attempt at a quay was built, the first record of building about the harbour that I have met with, being a notice of *rebuilding* in 1484 a bulwark almost opposite to the present Shore Brae. This bulwark was rebuilt in 1549, with stones brought from

Dundee; and between 1623 and 1658 this "key" was extended towards "Futty" no fewer than about 500 "walking passes." Thus a considerable extent of swampy shore, liable to be overflowed every tide, was cut off from the channel, and was ultimately converted for a time into "a fertile corne-field." It has long been covered with streets and houses.

On the south side, near the mouth, a bulwark was built in 1608 to direct the current of the river into the sea, and to help to make the bar less formidable. Paterson's map in 1746 shows alterations in the natural features of the estuary, but practically none in the quay and bulwark. In 1775 the building of the north breakwater was begun. It and the south breakwater have been greatly extended since that date; but they have not greatly affected the native flora of the estuary.

Between 1829 and 1832 the upper end of the channel used as a harbour was closed, the quays extended, and the harbour deepened by dredging. Between the years 1829 and 1848 the Victoria Dock was formed, with dockgates; and both it and the tidal harbour, from which it was entered, by 1850 were almost surrounded with quays or with shipbuilding yards. But the greater part of the estuary still remained almost in its natural condition until the formation of the new channel of the river, begun on 22nd December, 1869, and completed in 1872-3. By this work the estuary was replaced by a narrow channel between artificial banks, unsuited to an estuarine flora, and offering little room for upland species brought down by the Dee to spring up. All that was left of the former estuary was converted into extensions of the harbour, and was surrounded by docks or quays.

In 1881 the Victoria Bridge was opened as a new access to the growing suburb of Torry, which was included in the city in the last extension in 1891.

Above Craiglug the banks of the Dee underwent little change until towards the end of last century, when the Drive along the north bank was laid out past the Duthie Park and Allenvale Cemetery, and the bank itself was faced with stones for a considerable distance. Thus the conditions that had permitted the appearance beside the Dee of alpine plants sprung from seeds or other reproductive bodies carried by its tributaries from their homes in the Highlands were so changed as to lead to these plants becoming excessively rare or ceasing to grow below the Bridge of Ruthrieston, that is, within Aberdeen.

The changes of the Don have chiefly affected its course quite near the sea, the dunes offering less obstacle to alteration of its mouth than did the local conditions at the mouth of the Dee. The tradition that a bend of the Don like the head of a crozier indicated to St. Machar the site for a church, where the Cathedral now stands, is the earliest allusion to the course of the river, and indicates that the great bends above and below Seaton House existed in early times ; but a comparison of successive maps shows a good deal of variation in the islands and channels near Seaton and also at the Cruives a little higher up the Don. As these changes cannot be shown to have had any appreciable effect on the flora, they need not be dwelt on here.

More important in their influence on the vegetation were the changes that occurred near the sea. Opening in a sandy coast, quite unprotected against storms from the east, the Don must have been liable to have its mouth blocked with sand, and when thus dammed back it must have flowed southwards over the low part of the Links until it found or could make a new outlet. Its channel near the sea and mouth were probably subject to alteration by storms until artificially embanked in 1727, since which time they have undergone no great change.

It has been suggested that the Don may have long ago entered the estuary of the Dee near its mouth, but this is mere conjecture. The earliest authentic reference to its course is the note in the records of Aberdeen in 1521, already quoted, about the mussel-scaup "at the north watter besyd the Cunnigar hillis," indicating that the Don had then flowed south as far as the Broad Hill, and had entered the sea nearly a mile from its present mouth, probably through the gap in the sandhills already mentioned as existing until closed by the formation of the road along the coast. Through this gap within the past thirty years waves were occasionally driven, during severe easterly gales with high tides, a considerable way towards the Broad Hill.

In Gordon's map (1661) the Don is shown with its mouth almost as at present. No doubt the river had cut into the sand-barrier that turned it southwards until some river-flood had cut a new and direct channel to the sea. There is no record of when or under what circumstances this occurred, but Gordon tells us that there existed only a tradition in his time that the Don formerly entered the sea "under the Broad Hill," and that the "Loch of Canny Sweets Pott," still about "760 walking passes" long by from

50 to 100 broad, had once been part of the channel of the river. About 1719 the mouth of the Don was once more closed by sand, which caused the river again to flow over a part of the low ground and to make a new mouth, which is shown in Peter May's map (1756), probably from tradition, in so far as almost east of King's College. The new course did not touch "Canny Sweet Pot," already reduced to two ponds of small size. The change of the river's course lessened the value of the fishings, and the proprietors determined to have the direct outlet reopened, and made a contract to that effect with Professor James Gregory, M.D., of King's College and University. He completed the work on 1st June, 1727, greatly aided by a heavy flood of the Don, and placed a bulwark of stakes and large stones along the south side of the new mouth for a distance of 430 yards, to protect it from the drift of sand. He also placed a barrier of stakes across the bend where the river turned southwards over the Links, the remains of which may still be seen at low tide across the mouth of the Tile Burn. Dr. Gregory found the contract more profitable than he had anticipated, and he gave the surplus as a fund to assist "white-fishers" and their families.

His task was thoroughly done, and the Don has not again been blocked. In 1822-24, the bulwark was extended eastward into the sea 262 yards. For a time the mouth of the southern course remained open to the sea; but gradually it became filled up and almost disappeared.

The map of G. & W. Paterson, issued in 1746, as already noticed, represents the mouth of the Don incorrectly, in order to afford room for the ornamental title in the corner, showing its course, after Gregory's work had been done, almost as it must have been before 1727. On this map is repeated the tradition that the Don had once flowed through "Cannosweat." The streams flowing over the Links are shown entering the Don separately through low swamps, and Gregory's bulwark, across the river's former bed, appears on the map where it could be of no use. For about 150 years the Links underwent only very minor changes, chiefly in the extension of cultivation over the western part of what had been uncultivated, sandy, or marshy pastures, towards the Spital and Old Aberdeen.

During the last century changes in sanitary methods led to sewage being run into the streams that flowed over the Links, and united into the Tile Burn, which has for many years been little

better than an open sewer ; but the recent formation of a sewer to supply the requirements of Woodside and Old Aberdeen has done much towards cleansing these streams near Linksfeld and past East Seaton. A few years ago Canny Sweet Pot, reduced to two filthy quagmires, through which flowed a small stream, laden with the overflow from a sewage farm, disappeared under town-refuse, the stream having been turned into a subterranean drain ; and the refuse was in its turn hidden there, and in various other moist hollows of the Links, under a layer on which grasses were sown and an artificial turf formed. The formation of putting-greens, keeping down of whins and long grass and constant use of the ground by golfers have also greatly altered the surface of much of the lower part of the Links between the Broad Hill and East Seaton ; and the deposition of town-refuse to form large football grounds on swampy parts, one east of the Broad Hill, the other near Linksfeld, has done much to alter the native flora of the moister part of the Links south of the road from East Seaton to the sea.

North of that road high tides still cover almost all the low tract at times with brackish water ; and several species of estuarine plants still find their last refuge near Aberdeen. Probably in a few years this refuge will have become unfit for their needs, if the overflow from the Don is shut out and the surface dried. They have already suffered from the effects of the rank growth of some plants (docks, coarse grasses, etc.), induced by sewage, and from the removal of turf from a considerable part of its surface, for lawns, etc., during many years.

Reference has already been made to the changes on the dunes resulting from the operations at the Bathing Station, and the formation of the Drive or Esplanade, involving the filling up of the hollows with great masses of town-refuse of a most heterogenous kind, not merely to form the roadway, but to extend in long slopes, which covered with some inches of soil, and sown out with grasses, form artificial turf of a kind very different from the native vegetation.

CHANGES IN THE NATIVE FLORA.

It is of course impossible to procure documentary evidence of the constituents of the indigenous or native flora, using these words to denote those species which do not owe their presence to man's aid direct or indirect. Yet we may form what is probably an almost accurate conception of it from a knowledge of the original features

of the surface, and of the plants that still grow in similar situations in the neighbouring parishes, making due allowance for those among them that are of too local occurrence to warrant the confident assumption that they grew here.

The variety of surface within the limits of Aberdeen was so great as to be very favourable to a relatively rich flora. Along the seacoast of Aberdeenshire the sands and sand dunes possess a characteristic flora; and the strip of rocky coast south of the Dee, included in Aberdeen, resembles in its characters the similar coasts to the south, possessing a number of plants not or rarely met with on the sandy coast. The estuaries of the two rivers gave habitats for plants very rare or local in the district, each having, certain species not shared by the other, along with a good many common to both. On the rough shores of the Dee, and on the islands or inches in the estuary grew some plants usually confined to great heights on the hills, but that had sprung up from seeds or portions of the plants brought down by the Dee and its tributaries from their mountainous sources.

The undulating surface of the interior rose from nearly level sandy or loamy flats to heights of varying altitudes, some on dry, light, sandy soils, others where rocks broke through the thin soil, or where boulders large and small lay scattered through and over the debris left by the glacial period. Over the greater part of these heights extended heaths or moors, whose vegetation probably often consisted, as on other moors, of a very small number of species with ling (*Calluna vulgaris*) dominant. Here and there broom and whin or furze would take the place of the ling; and probably woods of Scotch fir and birch, perhaps mixed with oaks, may have covered a part of the surface; but such woods were usually destroyed near settlements even in the prehistoric period, leaving little if any trace.

In the valleys or glens, of varying width and depth, ran the streams, arising in or forming swamps, often of considerable extent, or shallow ponds (such as the lochs of Aberdeen and Old Aberdeen) surrounded by swampy shores. In some of the hollows lay peat mosses, as at Ferryhill, whence fuel was dug for use in the towns. Peat exists even on the slopes, as at Marischal College, where, as well as in West North Street, there occurs a bed of peat, containing abundant fragments of trees and bushes (birch, hazel, alder). The characteristic plants of the heaths and swamps must have been plentiful in the native flora, and so also must have been

the larger growths found on rough banks along rivers and burns such as still exist beside the Don, and as formerly existed by the Denburn, along the Corbie Heugh, and elsewhere.

Man's influence on the native flora could have been but slight during the prehistoric period, and must have been limited almost entirely to the neighbourhood of dwellings, to the formation of rude and small clearings, and to the cutting down of a few trees, or to the injuries inflicted by occasional fires whether intentional or accidental in their origin. It is unlikely that from the effects of such alterations any indigenous plants had become locally extinct, unless naturally extremely scarce and local. Indeed, even to a late period, the environs of Aberdeen underwent remarkably little alteration, except close to the town. The map of 1746 shows how little the natural features had been changed; and the extant descriptions of a somewhat later date confirm this fact.

The building of houses, the formation of streets, and the cultivation of the ground naturally suitable for agriculture near the town, had begun long before the flora of the locality had been investigated even in an elementary way; so that it is not possible to determine with certainty what indigenous plants may have disappeared prior to the rapid expansion of cultivation that began about the middle of the eighteenth century. Before that period the country within a mile of the town, small as Aberdeen then was, lay almost as it had been before man appeared in it. The chief change it had probably undergone was the clearing away of such woodlands as had existed, and the dying out of certain species that naturally live in forests. But the changes of the sort described by F. Douglas, led to a great diminution in the extent of heath and waste ground, and to the drainage of the marshes that formerly covered so much of the surface around the city, much of it within the area now occupied by streets. The reclamation of the heaths and swamps went on during upwards of a hundred years. It may be recalled that the Loch of Aberdeen disappeared completely in 1838, that the last of the peat mosses was the Moss of Ferryhill, so often named in the records of local botanists prior to 1850, but finally reclaimed soon after that date, and that Stocket Moor was a resort of the students of botany until about 1880, but was replaced by fields about that year.

The disappearance from within the area of the Parish of swamps and moors has led to the extirpation, complete or imminent, of many species of plants that still grow in such localities in the

adjoining parishes. Of some of these I have found examples within the Parish since 1869, the year in which my personal knowledge of the flora began. Others I have not seen growing here; but specimens exist, with labels indicating the places and dates of collection before 1860. Others, of which I have not been able to see authentic specimens, are recorded as having been found within the Parish, in localities that have long ceased to be suitable for them; the evidence being such as to leave no room to question its trustworthiness. Lastly, a considerable number of plants that occur in adjoining parishes are not now found in Aberdeen and there exists no actual evidence of their previous occurrence here, either as specimens or personal records; yet in view of their frequency in the near vicinity, in surroundings such as were formerly common within the Parish, it is practically certain that they must have formed a part of the indigenous flora, but had disappeared, unobserved, as a result of the altered conditions due to human agency.

The chief existing sources of information as to the plants found within the area in former times are found in (1) the manuscripts of Dr. David Skene (about 1765-70), preserved in the Library of the University of Aberdeen; (2) Dr. Alexander Murray's "Northern Flora," of which only the first part, including only about one-third of the flowering plants, was published in 1836; (3) Dr. George Dickie's "Flora Abredonensis," published in 1836; (4) a "Flora of Aberdeen," by Mr. Cow, a surgeon, prepared and printed, probably about 1836, but never published, and bearing neither date nor author's name; (5) Paul Howard Macgillivray's "Flora of Aberdeen," published in 1853; (6) Professor William Macgillivray's "Natural History of Deeside," issued posthumously in 1855 by command of Queen Victoria; (7) Professor Dickie's "Botanist's Guide to the Counties of Aberdeen, Banff, and Kincardine," published in 1860; (8) a few collections of dried plants in which are specimens labelled with localities and dates; (9) my personal observations and notes since 1869. Mr. Cow's "Flora" contains the largest number of named localities for plants within our limits; but unfortunately it bears evidence of defective acquaintance with many of the plants named in it, and its value is thus small when unsupported. In all the lists referred to localities are named only for plants regarded as rare or limited in distribution, the common species not being thought to need mention of special localisation. My own earlier notes are also restricted to the scarcer plants only;

but of recent years I have sought to ascertain the past and present distribution of all, whether rare or common.

The following have been seen by myself growing within Aberdeen Parish since 1869, but have not been found for some years, their habitats, moor or swamp (indicated by m or s after each name) in most cases having been much altered since that date. Most of them must be locally extinct though one or more may linger within our limits: *Lychnis Flos-Cuculi* s, *Taraxacum officinale*, var. *palustre* s, m, *Erica cinerea* m, *Pedicularis palustris* s, m, *Pinguicula vulgaris* s, m, *Empetrum nigrum* s, m, *Orchis latifolia* s, *O. maculata* m, *Narthecium ossifragum* s, m, *Juncus bulbosus* s, *Eriophorum angustifolium* s.

Of the following I have seen examples in collections made before 1850, but have not seen them growing here: *Potentilla palustris* s, *Drosera rotundifolia* s, m, *Apium inundatum* s, *Veronica scutellata* s, *Utricularia minor* s, *Habenaria conopsea* m, *Iris Pseudacorus* by streams, *Potamogeton polygonifolius* s, *Carex dioica* s, m, *C. pulicaris* s, m, *C. canescens* s, *C. pilulifera* m, *C. Hornschuchiana* s, m, *Phragmites communis* s.

The following are recorded, on evidence that seems amply sufficient, as having been found within our limits, but I have not seen local specimens of them: *Genista anglica* m, *Sedum villosum* s, *Epilobium palustre* s, *Galium uliginosum* s, *Menyanthes trifoliata* s, *Veronica Anagallis-aquatica* by Powis Burn near Links, *Utricularia vulgaris* peatmoss.

If we look to their distribution in the neighbouring parishes there is little doubt that the following must also have been indigenous in Aberdeen, though I have no record of their having been gathered in or recorded from the Parish: *Potentilla procumbens*, m, *Parnassia palustris* s, *Pyrola media* m and woods, *Euphrasia gracilis* m, *E. scotica* s, *Myrica Gale* s, m, *Habenaria bifolia* s, m, *Sparganium simplex* s, *S. minimum* s, *Eriophorum vaginatum* s, m, *Agrostis vulgaris* var. *pumila* m, *Deschampsia discolor* s, *Molinia varia* s, m and woods, *Lycopodium Selago* s, m, *L. clavatum* m, *Selaginella selaginoides* s. Others probably were native in Aberdeen though for them the evidence is less strong.

Of the indigenous plants that still survive within the Parish only a small proportion belong to the dwellers on moors and in swamps, and those that do are rapidly diminishing in frequency; and a number of them will probably become extinct in a few years, though some may linger on uncultivated ground by roads and railways,

or in ditches. Of such are : *Ranunculus hederaceus*, *R. Flammula*, *Caltha palustris*, *Radicula Nasturtium-aquaticum*, *Cardamine pratensis*, *Viola palustris*, *Hypericum pulchrum*, *H. humifusum*, *Lathyrus montanus*, *Hydrocotyle vulgaris*, *Galium palustre*, *Scabiosa Succisa*, *Antennaria dioica*, *Senecio aquaticus*, *Crepis paludosa*, *Vaccinium Myrtillus*, *Calluna vulgaris*, *Erica tetralix*, *Pyrola minor*, *Trientalis europæa*, *Myosotis cæspitosa*, *M. repens*, *Odontites rubra*, *Pedicularis sylvatica*, *Littorella uniflora*, *Salix repens*, *Listera cordata*, *Juncus bufonius*, *J. squarrosus*, *J. effusus*, *J. conglomeratus*, *Luzula multiflora*, *Triglochin palustre*, *Scirpus pauciflorus*, *S. cæspitosus*, *S. setaceus*, *Carex flacca*, *C. panicea*, *C. binervis*, *C. flava*, *C. rostrata*, *Alopecurus geniculata*, *Agrostis canina*, *Deschampsia flexuosa*, *Sieglingia decumbens*.

Few open ponds now exist within Aberdeen, those that do being more or less completely artificial, the sides and bottoms being cleared of weeds at intervals. In such ponds, of which Walker's Dam, the pond at the old Bridge of Dee, and the old quarries near Hilton may be taken as examples, the conditions are unfavourable to plant life, and very different from those afforded by the natural ponds such as the lochs of Aberdeen and of Old Aberdeen. In these it is possible that water lilies and bulrushes grew, as they do at present in the Corbie Loch, a few miles north of Aberdeen. Even in the older mill dams, such as at Justice Mill and at Gilcomston, certain species grew that had become extinct elsewhere in the Parish, such as *Polygonum Hydropiper* and *Alisma Plantago*, and *Potamogeton crispus* in the ponds at Rubislaw Bleachworks.

The rubbish heaps of the old quarries at Rubislaw and similar dry and waste ground elsewhere afforded a refuge to a few species, such as *Sagina subulata*, *Filago germanica*, and *F. minima*, which have become extinct or extremely scarce since the recent alterations due to the formation of the Anderson Drive.

There is reason to believe that part at least of the higher grounds of the inland portion of the Parish was wooded, probably with firs and birches, possibly with oaks intermixed, but for a time the country was stripped of trees, the woods that now exist having been planted within the last hundred and fifty years. Despite this there are within the Parish some indigenous woodland species. Very little wood is now left near Aberdeen on moorland ; but in the patches of conifer woods by Queen's Road West grow *Pyrola minor* and *Goodyera repens*, in great risk of becoming extinct. *Linnæa borealis* is found in woods in almost all the surrounding

parishes, very near the borders at Hazlehead. There seems reason to believe that it had formerly grown within Aberdeen though there is no actual record of its having been observed here.

The dry or rough ground and thickets on the slopes beside streams, as well as on parts of the moors formerly, had their peculiar species, some of which have become very infrequent, such as : *Corydalis claviculata*, *Polygala depressa*, *P. vulgaris*, *Linum catharticum*, *Trifolium medium*, *Senecio sylvaticus*, *Digitalis purpurea*, *Teucrium Scorodonia*, *Equisetum sylvaticum*.

The Dee, owing to its sources arising at a greater height, has differed much from the Don in the prevalence along its banks, even to a low level, of typically alpine and subalpine plants, sprung from seeds or from bulbs or other reproductive parts carried down by the river, and lodged on the shingles or banks. Thus the flora of Aberdeen included, on the north bank of the Dee and on the islands or inches of the estuary a good many plants of a type quite distinct from those characteristic of so low an elevation away from the river.

On the shores liable to be flooded with brackish or salt water grew estuarine plants, rarely found except in such localities. The changes made on the channel of the Dee and the obliteration of the estuary have led to the disappearance from the Parish of almost all the alpine and certain estuarine species not found by the Don.

Among the alpine and upland plants that formerly grew beside the Dee within Aberdeen there have disappeared *Meum athamanticum* and *Oxyria digyna* ; while *Galium boreale* has almost vanished. Others, such as *Trollius europæus*, *Arabis hirsuta*, and *A. petræa*, *Salix phylicifolia* still occur occasionally on shingles and banks by the Dee, west of Aberdeen Parish, under conditions such as to make it practically certain that they had formerly grown in similar surroundings within its limits, though not recorded as having done so.

Of the estuarine species native by the Dee *Cochlearia danica*, *Aster Tripolium*, and *Ruppia rostellata* have ceased to exist in the vicinity of Aberdeen ; and several others, that used to be frequent on the islands and low shores of the Dee, are extinct or nearly so there, though still met with by the estuary of the Don and on the low part of the Links near it.

During the last century the changes effected on the Links between the Dee and Don were slight in the early part of that period ; and consisted chiefly in the encroachment of buildings along the

estuary of the Dee and the west side of the Links south of the Broad Hill, and in the disappearance of marshes there that are shown in the earlier maps. To the east and north of the Broad Hill the Links underwent little change, except probably the extension eastward of the fields that lay between the Links and the continuation of King Street road north to the New Bridge of Don, opened about 1830. The Links had for a long time been used as a place of recreation by the citizens, including "goff" and bowls; and a race course is shown on the more level part of the southern Links or Queen's Links. On the part used for these amusements the vegetation must soon have showed the usual effects. In the older local records of the flora near Aberdeen there are few references to the Queen's Links, where probably the more rare or local plants were becoming extinct even before the time of Dr. David Skene, who died in 1770.

Some species grew within Aberdeen only upon the outer and barer sandhills or dunes; and others were limited to the low part (the filled up river bed) near the Don, and beside the Canny Sweet Pot and the burns that, after their union, flow northward to the Don, following the old river bed. Several of these species have become extinct, their former habitats in most cases having been so altered as to be no longer suitable for them. I have myself seen living there—*Astragalus danicus*, on dunes, *Hydrocotyle vulgaris*, *Scirpus rufus*, *Eriophorum angustifolium*, *Catabrosa aquatica* (all four on wet ground), all of which are apparently extinct locally. I have also seen specimens collected on the Links of *Saxifraga granulata*, *Iris Pseudacorus*, and *Carex incurva*. The following have been recorded on sufficient evidence, but no local specimens of them exist so far as known to me: *Radiola linoides*, *Ononis repens*, *Valerianella olitoria*, *Mertensia maritima* (beach near Don), *Phleum arenarium*. *Carex caryophyllea* was also recorded from the Links but probably in error.

During the past eight or ten years the changes in the surface of the Links have very greatly affected the native flora. The formation of the carriage-drive along the coast and of the artificial slopes alongside the drive have required the filling up of the hollows with materials from elsewhere (chiefly town refuse covered with some inches depth of soil) and the cutting down of the dunes, to the very great detriment of such plants as *Thalictrum minus* var. *dunense*, *Viola Curtisii*, *Tragopogon pratensis*, and others that with us are wholly or almost confined to the dunes. On the low ground east

of the Broad Hill the native flora has been destroyed by the deposition of cinders, to form a football-ground. The burns have for many years been used as sewers from parts of Aberdeen, Old Aberdeen, and Woodside, altering considerably the character of the vegetation beside them, though causing the extinction of very few native species.

A more serious result has followed the raising the low ground on the west side near Linksfield and East Seaton, and the obliteration of the two pools (Canny Sweet Pot) which so long remained as vestiges of the old channel of the Don. The refuse deposited in these places has wholly destroyed the native plants. The low ground of the old channel of the Don liable to be flooded at high tides is the last refuge within the Parish of Aberdeen of a number of plants that disappeared from the valley of the Dee when the estuary of that river was so greatly altered, and there grow in it the following species found nowhere else in Aberdeen or the adjoining parishes: *Ranunculus sceleratus*, *Potamogeton pectinatus*, *Eleocharis uniglumis*, *Scirpus maritimus*. The more noteworthy species that are now apparently limited in Aberdeen to this ground, but that formerly were common in the estuary of the Dee, and that still grow in the adjoining parishes are these: *Sagina maritima*, *S. nodosa* (almost extinct), *Spergularia marina* var. *neglecta*, *S. marginata*, *Statice Armeria*, *Glaux maritima*, *Juncus Gerardii*, *Triglochin maritimum*, *Scirpus pauciflorus*, *Carex Oederi*, *Sclerochloa maritima*.

The purchase, by the City, of Seaton Links in May 1907, and the expressed intention to extend the drive along the sandhills nearly to the mouth of the Don, and to embank and dry the low part of the Links near the Don, give reason to expect the early extinction there and therefore within the Parish, of these fifteen plants (and also of some that grow on the dunes, and that are already rare, such as *Linum catharticum*, *Habenaria viridis*, *Galium boreale* and *Botrychium Lunaria*) which are likely to become considerably less frequent, and some of them even to verge towards extinction, though not for some time: *Thalictrum minus* var. *dunense*, *Viola ericetorum*, *V. Curtisii*, *Cerastium tetrandrum*, *Honckenya peploides*, *Erodium cicutarium*, *Vicia lathyroides*, *V. angustifolia*, *Pimpinella Saxifraga*, *Tragopogon pratensis*, *Myosotis collina*, *Plantago Coronopus*, *Juncus squarrosus*, *Scirpus setaceus*, *Agropyron junceum*.

In addition to the many species named above a few others have

disappeared from their former habitats, and seem to have become extinct within Aberdeen. Among these are *Hypericum perforatum* (recorded from Rubislaw Den), *Chærophylum temulum* (in a hedge by the road near Cattofield from which it had disappeared five or six years ago), *Anthriscus vulgaris* (by walls and roadsides here and there), *Corylus Avellana* (the remains of which exist in peat under various parts of the city), and *Avena pubescens* (formerly on a rough bank near Old Aberdeen, destroyed by the removal of sand many years ago, although it may still grow by the Don).

The following plants, which approach in the adjoining parishes very near the limits of Aberdeen, probably grew within those limits formerly: *Ranunculus auricomus* (by the Don above the Old Bridge), *Helianthemum Chamæcistus*, *Prunus spinosa*, *Rubus fissus*, *Drosera anglica*, *Populus tremula*, *Schænus nigricans*, *Carex pallescens*, *C. distans*, *C. hirta*, *Festuca elatior*, *Bromus giganteus*, *Brachypodium sylvaticum*.

It is evident from the above that the indigenous flora has been very greatly altered through man's intervention. The rate of change, and of consequent extirpation, was very slow for a long time, but the drainage and cultivation of the soil from about 1750 onwards must have led to the rapid diminution in the frequency of the plants of moors and swamps. The local extinction of species has been chiefly completed during the past century, during which the rate of change has become more and more rapid, so that many native species have become much less common and there is reason to expect the disappearance of a number of these from the parish within a few years, especially from the Links and from the remains of woods and moors west of Rubislaw. A few of the species that there seems reason to regard as native have found the conditions offered them in cultivated ground favourable to their increase, and are more plentiful in it than in their native habitats; but the effect of man's occupancy of the soil on by far the most of the native species has been to reduce their abundance even though not causing their extirpation. The extension of streets and buildings of course expels all plants alike from their former habitats.

THE ALIEN FLORA.

The aliens of the Aberdeen flora for the most part fall naturally into certain groups as regards the causes and methods of their introduction, and into others as regards their ability to establish themselves in the district.

Many species were cultivated formerly, or are so at present, for their value as food plants, or for use as domestic remedies in former times, for qualities then held in esteem, but now forgotten, such as goutweed, mugwort or wormwood, and nettles; and it is not possible now to determine with certainty whether such species are natives or denizens, although their habitats and distribution may support the one view more strongly than the other. These species are frequently carried beyond the gardens or fields, either in the seeds, or in the weed heaps or other garden rubbish, or, less often, in old gardens that have been allowed to relapse to a waste condition, and whose former existence may be indicated only by some formerly cultivated bush or herb. From such beginnings those that can establish themselves spread, and may appear to be native.

Among such plants of uncertain position between the grades of native and denizen in the north-east of Scotland, including Aberdeen, are the following: *Radicula palustris*, *Barbarea lyrata*, *Sisymbrium officinale*, *Alliaria alliacea* (by walls locally), *Capsella Bursa-pastoris*, *Viola arvensis*, *Silene Cucubalus*, *Lychnis alba*, *Geranium molle*, *G. dissectum*, *Medicago lupulina*, *Potentilla reptans*, *Aegopodium Podagraria*, *Chærophyllum temulum*, *Anthriscus vulgaris*, *Artemisia vulgaris*, *Senecio vulgaris*, *Carduus crispus*, *Lapsana communis*, *Sonchus oleraceus*, *S. asper*, *Campanula latifolia*, *Nepeta hederacea*, *Scleranthus annuus*, *Atriplex patula*, *A. hastata*, *Polygonum Persicaria*, *P. lapathifolium*, *Ulmus glabra*, *Urtica dioica*, *Salix pentandra*, *Phleum pratense*, *Bromus sterilis*.

Several that appear to be alien in Aberdeen are probably native in Scotland (some in the valley of the Dee not far from the city), such as *Vicia lutea* (in south Kincardineshire), *Pyrus Aria*, *Viburnum Opulus*, and *Fraxinus excelsior*. Others that beyond question owe their present place in the flora to man's aid are natives in localities not far from Aberdeen, and probably were, or at least might formerly have been, indigenous within the Parish. Of such are: *Geranium pratense*, *Ilex aquifolium*, *Trifolium arvense*, *Saxifraga hypnoides*, *Scutellaria galericulata*.

Of the aliens a considerable number whose alien origin can be confidently recognised have established themselves so as no longer to require man's aid to retain their place in the flora; but among these many have not succeeded in spreading beyond the spot where they were planted or first gained a place; or if they spread it is only by pushing out branches that root in or on the ground. A smaller number only can extend their range by seeds or other

means that enable them to spring up in new places apart from the parent plants. To these only is the term denizen strictly suitable, while the others may be termed sub-denizens. But one finds difficulty in referring certain plants to one group or the other; for example some plants are plentiful though they rarely, if ever, seed here; while others that seed freely show little tendency to spread. Both denizens and sub-denizens differ from the colonists and casuals in their persistence where they find a place, and their early independence of help from man. Some of these denizens are established only along lines of traffic, while others seem almost independent of these. Among the denizens in the flora of Aberdeen are: *Acer pseudoplatanus*, *Lupinus nootkatensis*, *Prunus Avium*, *Geum japonicum*, *Cratægus Oxyacantha*, *Rosa rubiginosa* (rather scarce), *Saxifraga umbrosa*, *Ribes Grossularia*, *R. rubrum*, and *R. nigrum* (all three distributed by birds), *Conium maculatum*, *Myrrhis odorata* (not frequent), *Chrysanthemum Parthenium*, *Petasites albus*, *Doronicum Pardalianches*, *Anchusa sempervirens* (nearly extinct), *Convolvulus arvensis*, *Linaria Cymbalaria* (local), *L. purpurea* (local), *Mimulus Langsdorfii*, *Lamium album*, *Chenopodium Bonus-Henricus*, *Polygonum Bistorta*, *Fagus sylvatica*, *Poa compressa* (very local), *Glyceria aquatica*, *Festuca procumbens* (local), *Elymus arenarius*.

There is good reason for the belief that the indigenous trees of the vicinity of Aberdeen were practically destroyed, as the accounts of travellers in the eighteenth century agree in representing the east of Scotland as almost devoid of trees. Thus the existing trees around Aberdeen cannot be regarded as descended from the indigenous stock, even when of indigenous species; and several of the species were not originally natives of Scotland, although they may have sprung from self-sown seeds of planted trees, and often appear thoroughly native. Among these are the following: *Tilia cordata*, *Acer platanoides*, *A. campestre*, *Æsculus Hippocastanum*, *Cytisus Laburnum*, *C. alpinus*, *Prunus Avium*, *P. Cerasus*, *Pyrus Aria*, *P. Malus*, *Sambucus nigra*, possibly *Fraxinus excelsior*, *Ulmus glabra*, *Carpinus Betulus*, *Quercus Robur*, *Castanea vesca*, *Salix alba*, *S. fragilis*, *S. viminalis*, *S. purpurea*, *Populus alba*, *P. canescens*, *Picea excelsa*, *Abies pectinata*, *Larix europæa*, *Taxus baccata*, and other conifers.

In places one comes on bulbous or other perennial herbs, which still grow in the former garden or may have spread beyond its limits; or they may occupy or have spread from the former

refuse-heap of a garden no longer existing. In pleasure grounds and plantations various perennial herbs, such as London-pride and periwinkle have been planted; and, while some have scarcely spread from where they were originally placed, others have covered large patches of ground by their outgrowths so as to resemble true natives in their aspect, though rarely spreading to new centres at a little distance by seeds or detached portions. Such species often appear to be wild, and grow for years in the same habitats. They are scarcely entitled to be called denizens, yet are often difficult to distinguish from them, while distinct from casuals, though tending towards the latter. They may be grouped as sub-denizens. They include the following: *Anemone apennina*, *Helleborus viridis*, *H. fœtidus*, *Aquilegia vulgaris*, *Berberis vulgaris*, *Chelidonium majus*, *Corydalis lutea*, *Cheiranthus Cheiri* (apparently now extinct), *Cochlearia Armoracia*, *Hesperis matronalis*, *Lepidium Draba* (on rubbish near Railway Station, since 1893), *Viola cornuta* (at Rubislaw for some years, now extinct?), *Saponaria officinalis*, *Claytonia perfoliata* (weed in gardens in old Aberdeen), *Malva sylvestris*, *Geranium lucidum*, *Oxalis stricta*, *Medicago sativa*, *M. falcata* (on rubbish near *Lepidium Draba*), *Spiræa salicifolia*, *Saxifraga umbrosa*, *Sedum Telephium*, *S. anglicum* (now extinct), *S. reflexum*, *Sempervivum tectorum*, *Epilobium angustifolium* (the short-fruited variety), *Smyrniolum Olusatrum*, *Peucedanum Ostruthium*, *Cornus sanguinea*, *Symphoricarpos racemosus*, *Tanacetum vulgare*, *Petasites fragrans*, *Doronicum Pardalianches*, *Senecio sarracenicus* (extinct for some years), *Carduus arvensis* var. *setosus*, *Hieracium aurantiacum*, *Campanula rapunculoides*, *Vinca minor*, *V. major*, *Symphytum officinale*, *Anchusa sempervirens* (less frequent than formerly), *Volvulus sepium*, *Solanum Dulcamara* (extinct some years ago), *Linaria Cymbalaria*, *L. purpurea* (long established on old walls of gardens), *Scrophularia vernalis*, *Teucrium Chamædrys* (for years established on wall of garden at old House at Rubislaw, now extinct), *Plantago media* (in lawns), *Polygonum cuspidatum*, *Humulus Lupulus*, *Salix viminalis*, *S. purpurea*, *Narcissus Pseudo-narcissus*, *Galanthus nivalis*, *Polygonatum multiflorum*, *Ornithogalum umbellatum*, *Arum maculatum*.

In the cultivated soil of gardens, where the soil is every year turned over, and kept clear of perennials, and in the upturned soil of fields, among cereals and root-crops, as also on bare places around houses and by roads, grow many aliens that cannot succeed but on these newly exposed or bare surfaces. These are the

colonists. Frequently very hurtful to the cultivated plants, and very difficult to eradicate from cultivated ground, they disappear when cultivation is given up, as may be seen in many of the upland valleys. Most of these aliens had been brought from other countries among the seeds of cultivated species, though a few may have themselves been cultivated formerly, *e.g.* *Avena strigosa*. It is not easy to draw the line sharply between denizens and colonists, as the same species may show the characteristics of both types in different environments within the district. So at the other end of the scale of permanence it is not possible to define the limits of the term as distinct from the more frequent casuals. The colonists are all herbs and almost all are annuals. The following occur in Aberdeen: *Papaver dubium*, *Fumaria pallidiflora*, *F. Boræi*, *F. officinalis*, *Brassica sinapistrum*, *Capsella Bursa-pastoris* (?), *Thlaspi arvense*, *Raphanus Raphanistrum*, *Spergula arvensis*, var. *sativa*, *Æthusa Cynapium*, *Centaurea Cyanus*, *Lycopsis arvensis*, *Veronica hederifolia*, *V. didyma*, *V. Buxbaumii*, *Galeopsis speciosa*, *G. Tetrahit*, and var. *bifida*, *Lamium amplexicaule*, *L. molucellifolium* (= *L. intermedium*), *L. purpureum*, *Scleranthus annuus* (? native on dry bare banks), *Chenopodium album*, in the varieties *incanum*, *viride*, and *viridescens*, *Atriplex patula*, in the forms *erecta* and *angustifolia* (? native on sea coast), *A. hastata* (? native on sea coast), *Polygonum Convolvulus*, *P. Persicaria* (? native by pools), *P. lapathifolium* (rare, native in damp ground), *Urtica urens* (local), *Euphorbia Helioscopia*, *E. Peplus* (in gardens). The above are all more or less general and frequent.

Numerous other aliens also exist as field weeds around Aberdeen, but are local or rare, or are less constant in their occurrence, although they may almost always be found by those who know the district. For these I use the term sub-colonist, to denote that they approach the colonists in constancy, though less plentiful. Here again it is not possible to draw a sharp line between the sub-colonists and the more frequent casuals. As sub-colonists in our flora may be named: *Fumaria capreolata*, *F. Boræi*, *Reseda Luteola* (very uncertain), *Saponaria Vaccaria*, *Lychnis Githago* (more common formerly), *Spergula arvensis* var. *vulgaris* (becoming less scarce), *Malva borealis*, *Oxalis stricta*, *Anthemis arvensis*, *Anagallis arvensis*, *Solanum nigrum*, *Stachys arvensis*, *Chenopodium rubrum*, *Trisetum flavescens*, *Avena strigosa*, *Lolium multiflorum*.

The casuals include a large and constantly increasing number of species, mostly annuals, or, if perennials, unable to survive the

winter here, which seldom keep their place for more than one or two seasons. They appear usually on rubbish heaps, or where refuse has been deposited to fill up hollows; and they also are frequent near railway stations, flour mills using foreign grain, and works that employ foreign imports. They are less frequent in cultivated soil, but may be brought to it by manure, moss litter and similar substances; and they may also be found beside roads and railways. Formerly ballast-heaps were a fertile source for such plants. Their abundance is in some degree proportionate to the commerce of a city, while their nature indicates the countries from which they have been brought.

Many casuals have been observed only once or twice in or near Aberdeen; others recur from time to time, but only from new seeds, brought unintentionally from abroad. Few seem to produce seeds fit to ensure the continuance of the species, yet a few can produce fertile seeds here, and their failure to gain a place must result from other causes. Here and there on refuse heaps occur crowds of seedlings suggestive of the sweepings or rubbish of fruiterer's and seedsmen's shops, such as oranges, vines, dates, tomatoes (often coming to full flower, and occasionally to fruit), and assemblages of foreign species of tares and other agricultural seeds or weeds. Several of the casuals of the Aberdeen flora are colonists, denizens, or even natives in the counties adjoining the city.

The following casuals probably were outcasts from, or relicts of gardens, cultivated for their beauty probably in most cases, though some scarcely appear likely to be cultivated. Some of them may appear on rubbish, on the links or elsewhere, through shop-sweepings thrown on to the refuse: *Papaver somniferum*, *P. pavoninum*, *Meconopsis cambrica* (a denizen elsewhere in the Aberdeen district), *Chelidonium majus*, *Lunaria annua*, *Malcolmia maritima*, *Iberis sempervirens*, *Reseda odorata*, *Dianthus barbatus*, *Cerastium hirsutum*, *Malva moschata*, *Geranium striatum*, *G. pratense*, *Impatiens Roylei*, *Tropæolum majus*, *Lathyrus odoratus*, *L. latifolius*, *Fragaria* spp., *Potentilla recta*, *P. norvegica*, *P. argentea*, *P. fruticosa*, *Saxifraga hypnoides*, *Asperula odorata*, *Helianthus argyrophyllus*, *H. decapetalus*, *Lythrum Salicaria*, *Achillea crithmifolia*, *Anthemis tinctoria*, *Anacyclus radiatus*, *Chrysanthemum segetum*, *C. Myconis*, *C. Parthenium*, *Doronicum Pardalianches*, *Calendula officinalis*, *Cnicus eriophorus*, *Onopordon Acanthium*, *Silybum Marianum*, *Campanula Trachelium*, *C.*

Rapunculus, *Anagallis cærulea*, *Polemonium cæruleum*, *Borago officinalis*, *Convolvulus tricolor*, *Nolana prostrata*, *Solanum nigrum*, *Hyoscyamus niger*, *Verbascum Thapsus*, *Verbena officinalis*, *Stachys italica*, *Prasium majus*, *Amaranthus retroflexus*, *Euphorbia Cyparissias*, *Apera Spica-venti*, *Briza maxima*, *B. minor*, *Bromus madritensis*, *B. rubens*, *B. maximus*, *B. unioloides*.

Other casuals probably sprung from seeds of plants cultivated in garden or field as food plants for man or for domestic animals, or (e.g. flax) for other useful products, such seeds being scattered by houses or roads or among other crops in which they appear like weeds, or they may spring up on rubbish, probably from the sweepings of seedmen's shops. A fertile source of a number of casuals, under Leguminosæ, along with a few others, is found in "foreign tares" imported from Königsberg in East Prussia. Among such casuals introduced for their utility may probably be included: *Brassica* (turnips, cabbage and its varieties, and mustards), *Lepidium sativum*, *Raphanus sativus*, *Medicago sativa*, *Melilotus officinalis*, *M. alba*, *Trifolium pratense* var. *sativum*, *T. agrarium*, *Pisum arvense*, *P. sativum*, *Vicia Faba*, *V. sativa*, *V. varia*, *V. gemella*, *V. monanthos*, *V. lutea*, *V. bythinica*, *Lathyrus Aphaca*, *L. inconspicuus*, *L. hirsutus*, *Apium graveolens*, *Carum Petroselinum*, *C. Carui*, *Anthriscus cerefolium*, *Peucedanum sativum*, *Coriandrum sativum*, *Helianthus tuberosus*, *Solanum tuberosum*, *Beta vulgaris*, *Spinacia oleracea*, *Cannabis sativa*, *Avena sativa*, *A. orientalis*, *Secale cereale*, *Triticum* spp. (wheat), *Hordeum vulgare* (barley, bere, etc.). From outcast decayed fruits must have sprung the multitudes of seedlings met with several times on refuse, near the Railway Station on the old bed of the Dee, and on the Links, belonging to *Citrus Aurantium* (orange), *Vitis vinifera* (grape-vine), *Lycopersicum esculentum* (tomato), and *Phoenix dactylifera* (date).

Probably among agricultural seeds from the nearer countries of continental Europe have been brought the seeds of numerous alien weeds, of which many of the earlier to arrive have long established themselves as colonists or denizens; but others, of less adaptable constitution, have failed to reproduce themselves. Among the seeds still introduced from southern Britain, from the continent, or from other lands the aliens still occur, though in smaller proportion owing to the improved means of clearing out the impurities. The grain imported from some of the eastern countries of Europe, for distilling, milling, or other purposes, and the tares, as already noted, are peculiarly apt to be contaminated in this way. Of the

aliens so introduced most fail to pass beyond the grade of casuals. Of such probably are : *Sisymbrium pannonicum*, *Erysimum cheiranthoides*, *Camelina sativa*, *Eruca sativa*, *Lepidium ruderales*, *Lepidium virginicum*, *Neslia paniculata*, *Rapistrum rugosum*, *Silene anglica*, and var. *quinquevulnera*, *S. lata*, *S. dichotoma*, *S. noctiflora*, *Trigonella cærulea*, *T. Fœnum-græcum*, *T. polycerata*, *Medicago falcata*, *M. orbicularis*, *M. denticulata*, *M. maculata*, *Melilotus elegans*, *M. indica*, *M. messanensis*, *Trifolium ochroleucum*, *T. resupinatum*, *Lotus tenuis*, *Scorpiurus subvillosus*, *Ervum Lens*, *Lathyrus Ochrus*, *Bupleurum rotundifolium*, *Scandix Pecten-Veneris*, *Caucalis latifolia*, *C. nodosa*, *C. daucoides*, *Galium spurium* and var. *Vaillantii*, *G. tricornis*, *Asperula arvensis*, *Erigeron canadensis*, *Ambrosia artemisiæfolia*, *Xanthium spinosum*, *Bidens tripartita*, *B. chrysanthemoides*, *Galinsoga parviflora*, *Anthemis mixta*, *A. Cotula*, *Matricaria Chamomilla*, *Artemisia arenaria*, *Senecio viscosus*, *Carthamus tinctorius*, *Centaurea Calcitrapa*, *Arnoseris minima*, *Rhagadiolus edulis*, *R. Hedypnois*, *Picris echioides*, *Crepis tectorum*, *Thrinchia nudicaulis*, *Anagallis cærulea*, *Echinospermum Lappula*, *Siderites montana*, *Plantago arenaria*, *Chenopodium polyspermum*, *C. Vulvaria*, *C. album* var. *leptophyllum*, *C. opulifolium*, *C. serotinum*, *C. Botrys*, *Salsola Tragus*, *Polygonum equisetiforme*, *Fagopyrum tataricum*, *Rumex pulcher*, *R. bucephalophorus*, *Panicum miliaceum*, *Setaria viridis*, *Phalaris cærulescens*, *Alopecurus myosuroides*, *Avena fatua*, *Gaudinia fragilis*, *Festuca rigida*, *F. uniglumis*, *F. ligustica*, *Bromus squarrosus*, *Lolium temulentum*, *Triticum triunciale*, *T. caudatum*, *Hordeum murinum*, *Elymus Caput-Medusæ*.

Some of these may have been brought in commercial traffic of other kinds, e.g. the bur-like fruits of some medicks, of burdocks and of *Xanthium* are entangled in wool, others in moss litter and so on. Others, e.g. fruits of hemp and of canary-grass, are largely dispersed because of their use as food of cage birds.

Ballast heaps formerly yielded numerous aliens, such as *Reseda lutea*, *Atriplex littoralis*, *Panicum sanguinale*, etc.

But while the modes of introduction of most of the aliens may be conjectured with a fair amount of success, it is right to remember that the evidence is often very defective, and in the case of a few species, e.g. *Rumex maritimus*, one can scarcely even suggest the method of immigration, though assured of their alien origin.

The aliens of the flora of Aberdeen are derived from various parts of the world, though in very different proportions. From the tropical or sub-tropical zones there are none capable of surviving

to maturity, although in fine summers the orange and date seedlings spring up sometimes in large numbers and the maize in small. It is useless to attempt to assign these plants to definite countries; and this is also the case with the still more frequent vine and tomato seedlings, the fruits of all these plants being brought from many lands. By far the most of all grades of aliens have been brought from other countries of Europe. A large part of the earlier established denizens had probably been brought from England, or from southern Scotland, where some of our denizens appear to be indigenous. The other older denizens appear to have been brought by immigrants from the nearer countries of continental Europe, from which probably came also the most of the colonists.

The casuals from their inability to establish themselves soon disappear leaving no trace; hence we cannot tell what forms may have at times grown here before they were taken note of by botanists. It is often difficult to ascertain the name of a casual; and probably this prevented a record of them being kept even after the flora was under investigation. Thus the very rapid increase of the number recorded in recent years is probably real only in part, and is due largely to more thorough investigation. Of the casuals that have been observed in recent years a great part must be accepted as probably brought from the countries around the eastern part of the Mediterranean Sea and the Black Sea, as seeds among the grain imported from these regions. Another part is native in the western part of the Mediterranean area, or in Central Europe. From North America have come a few denizens (such as *Lupinus nootkatensis*, *Mimulus Langsdorfii*, *Elodea canadensis*), and two or three rare casuals (*Erigeron canadensis*, etc.). South America has sent only a few casuals; while South Africa, Australia, and the other British possessions have produced no effects on our flora worth noting. The relatively small number of aliens that have succeeded in establishing themselves as denizens in the British Islands is in marked contrast with the course of events in most of the British Colonies, such as Canada and New Zealand. Many of the European weeds, like the European nations, appear to have a peculiar power of annexing new lands into which they have come.

FLORA OF THE CITY PARISH OF ABERDEEN.¹

II. SYSTEMATIC RECORD.

DICOTYLEDONES.

POLYPETALÆ.

RANUNCULACEÆ.

Thalictrum minus, *L.*, var. *dunense* (*Dum.*). Lesser Meadow-rue. Native.

"In arenosis, at the back of the Broadhill" (Skene). "Links opposite Broadhill" (Harvey).

Still abundant on the sandhills along the coast, where not destroyed in the formation of the Esplanade and the adjoining slopes. The leaves are often infested by a fungus (*Urocystis sorosporioides*, Korn.), which causes swollen spots to form, at first pale, but which have the interior full of soot-like spores, exposed by rupture of the lower surface.

Adt. Ps. : : : : O. Confined to dunes along the coast.

¹ Although this is the title given by Professor Trail to his manuscript, the "Flora" also includes comparative information on the distribution of plants in the neighbouring parishes. The adjacent parishes (Adt. Ps.) are named from south to north round Aberdeen, and are indicated by the abbreviations: Ng, Nigg; B, Banchory Devenick; M, Maryculter; P, Peterculter; Nh, Newhills; D, Dyce; O, Oldmachar. A colon occurring in place of the abbreviation indicates that the plant is not known from the parish in question; when the abbreviation is bracketed the plant was not seen growing by Professor Trail.

The abbreviations used in the citation of authorities are: N. Fl., Murray's "Northern Flora"; Fl. Ab., Dickie's "Flora Abredonensis"; B. G., Dickie's "Botanist's Guide"; P. M., Paul Howard Macgillivray's "Flora of Aberdeen," see p. 84.

Specific names within square brackets are those of plants not known to have occurred within the City Parish. The names of plants native in the Parish are printed in clarendon, of those not native in italics.

Anemone nemorosa, *L.* Wood Anemone. Native.

"In sylvis" (Skene). "Rubislaw, 1806" (Knight hb.).

No doubt abundant formerly in Aberdeen, but now restricted to a few localities; Rubislaw Den and Quarries; still plentiful by the Don, above the Old Bridge.

Adt. Ps. In all, frequent; abundant in many places.

A. apennina, *L.* Apennine Anemone.

This native of Southern Europe has for many years grown apparently wild on a bank near the mansion house of Seaton, along with other naturalized species.

Ranunculus aquatilis, *L.* Water Crowfoot or Water Buttercup. Native.

"In aqua submersus" (Skene). "In the Links" (Harvey). "King's Links, 10/8/1833, Firhill-well burn, etc." (Knight).

It is probable that water-buttercups were frequent in the pools and streams that formerly existed within the limits of Aberdeen; but they now appear to be restricted to the Dee above Allenvale, in very small amount, and to the Don, in which they have suffered from the abundant pollution of the river by refuse from the various mills. Near Seaton House, in a small side-channel of the Don, the plants are abundant in places. A collection made here to illustrate all the forms showed chiefly *peltatus*, Schranck, with which grew a few that seemed to be *heterophyllus*, Weber, and a good many intermediates (? hybrids) between these forms.

R. hederaceus, *L.* Ivy-leaved Crowfoot or Buttercup. Native.

"In fossis et aquosis, passim" (Skene). "Sides of pools everywhere" (Knight).

Locally common in muddy ditches, though probably a good deal less common than before the surface of the country was drained.

Adt. Ps. In all, frequent.

R. sceleratus, *L.* Celery-leaved Crowfoot or Buttercup. Native.

"Passim in fossis aquosis" (Skene). "Ditch, Bowl Road, not common" (Knight). "Near the Devanha Brewery and Old Town Links" (Harvey). "North side of the Dee near the Wellington Bridge, and near the Brickwork in the Old Town Links" (Fl. Ab.). "In a ditch on the east side of King Street" (P. M.).

Since 1870 this has been confined to the low north part of the Links, where it still is not uncommon on the muddy banks of small pools and streams, and on a swamp near East Seaton. In recent years it has been restricted considerably by the filling up of Canny Sweet Pot and the formation of the football field on the west side of the Links near Linksfeld. On the rubbish laid down in both works a number of dwarf plants of this buttercup grew, some of them not exceeding two inches in height, when in fruit. The alterations on the north part of the Links appear to have led to the extinction of the species within the city limits.

Adt. Ps. Ng : : Nh : O. Formerly by the coast at Cove and near the mouth of the Don in Old Machar; but rare and now extinct. Found by Mr. Frederick Laing in 1910 by a small pond in old quarry west of Springhill House. I saw it there in plenty in October, 1913.

R. Flammula, *L.* Lesser Spearwort. Native in wet places.

"Passim in fosis et locis humidis" (Skene). "Craiglug, by the Dee, 1801" (Knight hb.).

Still frequent in damp places by streams and in ditches locally. This plant must have been much more abundant before drainage and general cultivation of the soil.

Adt. Ps. In all, plentiful.

Var. radicans, *Nolte*. This variety, marked by its procumbent stems rooting at the nodes, may be found with the type in many places in the vicinity of Aberdeen, though not common within the parish.

R. acris, *L.* Upright Meadow Crowfoot or Buttercup. Native.

"Ubique in pratis et pascuis" (Skene).

On waste ground, by roads, and in pastures; everywhere common, and often abundant. I have notes of the forms *rectus* (Bor.), *Boræanus* (Jord.), and *tomophyllus* (Jord.) as found within Aberdeen and vicinity.

Adt. Ps. In all, plentiful.

R. auricomus, *L.* Goldilocks. Native.

Observed within Aberdeen once, on the bank of River Don about half-way between Old and New Bridges, 16th May, 1913. Native by the Don, in some quantity, on the steep north bank about a furlong above the Old Bridge. It is also native in the

valley of the Dee, e.g., in the Corbie Den, a few miles west of Aberdeen; but it is very local in this part of Scotland. It may not improbably have grown in Aberdeen formerly in other places now rendered unfit for its needs.

R. repens, *L.* Creeping Crowfoot or Buttercup; locally called "Sitsiccar." Native; spreading more widely in cultivated ground.

Very plentiful as a weed, and difficult to eradicate. Included in all the local lists from Skene (1763) onwards.

Adt. Ps. In all, too abundant.

R. bulbosus, *L.* Bulbous Crowfoot or Buttercup. Native in light soil.

"Back of the Broadhill" (Beattie and Harvey). "Broadhill, Seaton Park, etc." (Knight).

Locally abundant by the Don near Seaton House; frequent on the inner slope of the sandhills near the mouth of the Don; a few on the bank of the Dee near the Bridge of Ruthrieston.

Adt. Ps. Ng B M P : D O. Very local. Abundant by the Dee near the bridge at Cults.

R. sardous, Crantz (*R. hirsutus*, *Curtis*). Pale hairy Crowfoot or Buttercup. Alien; as yet little more than casual. Native in other parts of Scotland, to the South, and in England.

"Fields at Broomhill" (Harvey).

Living plants were brought me in 1897, from bare soil around a recently planted young tree in Hamilton Place. Their descendants still grow in my garden. In 1903 I found two or three plants on recently deposited rubbish on the Links north-east of the Broadhill; and in 1908 there were a good many plants among grass a little way from this place, where other rubbish had been levelled and grass-seeds sown. In October I found a plant in fruit in Ferryhill. It appears to be establishing itself in the local flora.

Adt. Ps. : B : : : O. Rare, by the Dee, near bridge at Cults, June, 1909, and near the mill by the Don between the Old and New Bridges in September, 1914.

R. arvensis, *L.* "One specimen in a cornfield, 1811" (Knight).

R. Ficaria, *L.* Lesser Celandine. Native on moist soil, by streams and in woods.

"*Passim in locis udis*" (Skene). "*Rubislaw, 1801*" (Knight hb.).

Still plentiful by the Don, in Rubislaw Den, by Walker's Dam, and in a few other places suitable to it; but it must have been much more general formerly. It shows great variability in the lobing and form of the leaves, and also in their colour. Fruits are rarely matured, multiplication being usually effected by buds, each carrying a food-store in a tuberous root, produced in the axils of the leaves.

Adt. Ps. In all; plentiful in suitable habitats.

Caltha palustris, L. Marsh Marigold. Native by sides of streams, and in marshy ground.

"*In locis et pascuis humidis; passim in palustribus et aquis*" (Skene). "*In ditch near the Links, May, 1849*" (Macgillivray hb.).

Rather common by the Don; less frequent by other streams, and in ditches here and there; but certainly much restricted by drainage.

Adt. Ps. In all; frequent in wet places. A variety with procumbent stems, rooting at the nodes, occurs in some places; and I have found a form very near *radicans*, Forster, in Newhills, Dyce and Old Machar (Perwinnes Moss). It is not uncommon inland.

[*Trollius europæus*, L. Globe-flower.]

Not recorded from Aberdeen; but may have formerly grown by the Dee, with other natives of the upland pastures, woods, and moist rocks, where it is locally common.

Adt. Ps. : B M P : : . . . By the Dee; not common.

Helleborus viridis, L. Green Hellebore. *H. fœtidus*, L. Stinking Hellebore. Both aliens here; probably relicts of cultivation, or outcasts from some garden.

Both were recorded before 1840 as in Rubislaw Den, where I saw *H. fœtidus* in 1878; but they were rare, and have not been observed for a good many years in Aberdeen, even as casuals.

Aquilegia vulgaris, L. Common Columbine. Little more than a casual in Aberdeen, though well-established as a denizen in the valley of the Dee; no doubt derived from cultivated plants originally, as it has long been a favourite in gardens. It may be native as far north as Dumfriesshire.

"On a wall at Rubislaw" (Fl. Ab.).

In 1872 I found it on the bank of the Dee at Allenvale ; but for a number of years I have not seen it even apparently wild here.

Adt. Ps. : B M P : : O. Recorded seventy years ago from the banks of the Dee, and from the Old Bridge of Don.

BERBERIDACEÆ.

Berberis vulgaris, L. Common Barberry. Alien ; native in England.

“Den of Rubislaw, probably introduced” (Knight, also Fl. Ab.).

I have seen it in the Den of Rubislaw, and by roads here and there around the city, as well as in several of the adjoining parishes ; but in almost all the localities it appeared to have been planted, and nowhere to have become a denizen.

NYMPHÆACEÆ.

There is no record of water-lilies having been native within the parish ; but as three (*Nymphæa lutea*, *N. pumila*, and *Castalia alba*) grow wild in the Corbie Loch, on the borders of Old Machar, near Parkhill, and also in lochs a few miles up the valley of the Dee, it is not unlikely that one or more grew in the lochs within Aberdeen.

Castalia alba, Greene. White Water-lily.

In old quarries at Hilton, where it was planted several years ago.

Adt. Ps. : B M P : : O. “Pitfodels Loch, 1806” (Knight hb.). As the White Water-lily is sometimes introduced into ponds it may not be native in some of its habitats.

PAPAVERACEÆ.

No species of this family is native in the north-east of Scotland ; but several are colonists, subdenizens or casuals.

Papaver somniferum, L. Opium Poppy. Native of Asia ; widely grown as a garden plant.

A frequent casual on town refuse and on waste ground around Aberdeen, e.g., on the Links ; occasionally as a weed in gardens and among cereals and root-crops ; but nowhere as a colonist.

P. Rhæas, L. Common Red Poppy. A rare casual only near Aberdeen.

“In arvis” (Skene). “Among corn : less frequent than *P. dubium*” (Knight). “Occasionally about Aberdeen” (Cow).

"Frequent" (Fl. Ab.). "Corn fields, but rare and uncertain in appearance" (B. G.).

Very rare and uncertain as a weed among crops and on waste ground and rubbish near Aberdeen, so far as I have seen it. The records by Skene and by Cow, if correctly referring to *P. Rhæas*, seem to show that it was less rare formerly, perhaps because of the cultivation of wheat around Aberdeen leading to the introduction of its seeds with the wheat.

Adt. Ps. Ng B : P Nh D O. A rare casual.

Var. *Pryorii*, Druce. Several plants were found in July, 1910, on materials used for widening the railway south of Don Street Station, and since then near Old Aberdeen and elsewhere.

Adt. Ps. Ng : : P : : . A rare casual on rubbish.

P. dubium, L. Long smooth-headed Poppy. Colonist. Native of Europe.

"Frequens inter segetes et ad vias" (Skene). "Frequent" (Knight). "Fields, not infrequent" (Fl. Ab. and B. G.). "N. side of Old Aberdeen" (Beattie).

Rather common in certain fields around the city, especially along King Street, north of School Road. It seems to be less common than it was thirty or forty years ago.

Adt. Ps. Ng : : P Nh D O. Local and rather scarce.

P. Argemone, L. Long prickly-headed Poppy. Very rare casual locally; but perhaps a colonist formerly, as it is at present about St. Cyrus and Montrose. Native of Continental Europe.

"Inter segetes et ad vias" (Skene). "In fields near Round O of Ferryhill, 1827" (Harvey). "Common on Sandhills, Ferryhill, 1834-38" (Knight). "I have never met with it in this quarter" (B. G.).

I had not found it in Aberdeen until July, 1910, when several plants occurred on materials used to widen the railway south of Don Street Station. It seems to have been a colonist here while wheat was cultivated.

Adt. Ps. Ng B : (P) : : O. A rare casual.

P. pavoninum, Meyer. A rare casual; native of Afghanistan.

I found two or three examples in 1905 on rubbish spread on the football ground, then being formed on the Links between Linkfield and East Seaton. The seeds may have been in the sweepings of some shop.

Meconopsis cambrica, Vig. Welsh Poppy. Subdenizen or casual; originally introduced from gardens. Native in parts of England, and perhaps in the south of Scotland.

"Near Richmond Hill, rare" (Fl. Ab.).

On rubbish near Aberdeen in 1904. It is little more than a casual near the city; but is well-established as a denizen in places in the neighbouring counties.

Adt. Ps. : B M : Nh : : .

Glaucium corniculatum, Curtis. Scarlet Horned Poppy. A rare casual; native of Southern Europe.

I found this on rubbish in August, 1908, on Old Aberdeen Links near Linksfield, and again in July, 1911, by the new road east of New Bridge of Don.

G. flavum, Crantz. Yellow Horned-poppy.

"Ad maris littora — Bay of Nigg, floret ineunte Augusto" (Skene, under the name *Chelidonium Glaucium*, with a good description). "Nigg, 1797" (Beattie). "Now extirpated" (Beattie, in Flora Scot.).

There seems no reason to doubt that it was native at Nigg, where Skene found it before 1770, and where Beattie's records show that it still grew in 1797, but it had become extinct before 1810. There is no other note of its occurrence anywhere near Aberdeen. It is confined in Scotland to a few localities on the coasts, and is becoming markedly rarer in most of them.

Chelidonium majus, L. Celandine. Rare, only casual or outcast in Aberdeen. Native in eastern Europe. Seeds have been recorded from interglacial deposits in Sussex.

"Old Aberdeen" (Beattie). "At the Snow Churchyard, Old Aberdeen, 1806" (Knight). "Side of a bank west from Cluny's Lane" (Cow). There is a specimen in the Laing herbarium, gathered near Old Aberdeen in 1839.

I have not seen this growing within the parish.

Adt. Ps. : : : P : : : . A well-established denizen here and there in the neighbouring counties.

FUMARIACEÆ.

Corydalis claviculata, DC. White Climbing-fumitory. Native.

"In sylvis saxosis, Den of Robslaw" (Skene, etc.).

It still grows there, and probably grew in similar broken ground in other localities in Aberdeen formerly.

Adt. Ps. : B M P Nh D O. Rather local, in woods and thickets, and among stones ; but plentiful where it occurs.

C. lutea, DC. Yellow Fumitory. A very local subdenizen ; native of southern Europe. Frequently grown in gardens.

This has grown for many years on an old garden wall at Rae-den ; and in 1877 was also observed on a wall at Rubislaw.

Adt. Ps. : : M P : : : .

Fumaria capreolata, L., agg. Rampant Fumitory. Rare alien probably.

"Below Firhill wall" (Beattie). "Dee and Don banks, not common" (Knight). "Occasionally on the banks of the Dee near Aberdeen" (B. G.).

I have never seen any form under this aggregate near Aberdeen in any habitat that was not open to the likelihood of the plant being of alien origin ; in fact within the parish it is so rare and uncertain as to suggest that it is little more than a casual. Of the segregate species the following have been found locally :—

F. pallidiflora, Jord. (*F. capreolata*, L., seg.).

"South Aberdeen, 1841" (Laing hb.).

I found a few plants in 1893 in a field of oats near Woodside ; but I have not again seen it here.

Adt. Ps. : : : P : : O. A rare colonist or subdenizen.

F. densiflora, DC. Small-flowered Fumitory. A rare casual here. A colonist in most countries of Europe ; probably native of central or southern Europe.

A living specimen was shown me in 1878, from a field on the farm whose site now is occupied by the Duthie Park.

Adt. Ps. Ng : : : : O. Once found by me in Nigg, by the railway, and once north of the Don, probably as a casual. It is a rather common colonist between Montrose and St. Cyrus.

F. officinalis, L. Common Fumitory. Colonist. Native in southern Europe probably ; but widely dispersed as a weed of cultivated soil.

"Passim ad vias et inter segetes. Planta valde amara" (Skene).

Rather common in fields and gardens, and on rubbish, around Aberdeen.

Adt. Ps. In all ; a fairly common colonist.

CRUCIFERÆ.

Matthiola tristis, R. Br. Rare casual; native of Mediterranean area.

Found by me, in 1893, on rubbish in the filled-up bed of the Dee.

Cheiranthus Cheiri, L. Common Wallflower. Formerly a denizen in Aberdeen, but not observed as such for many years; native of southern Europe; widely dispersed by cultivation during a long time.

"Old walls, Fishmarket, Barracks, etc." (Knight). "Wall near Castle Hill, 1827, and near Old Aberdeen, but now extirpated" (Harvey, with specimen). "On old walls, not common; growing from east wall of St. Machar's Kirk; on the top of a wall going up to the Barracks; on wall-tops in the Old Town" (Cow). "Old Machar Cathedral" (P. M. in 1853).

I have not seen the Wallflower as a denizen in or near Aberdeen. It has long been well established on the ruins and rock of Dunnottar Castle, and on a few other similar ruins in the adjoining counties.

Radicula Nasturtium-aquaticum, Rendle et Britten (*Nasturtium officinale*, R. Br.). Common Water-cress. Native by streams and in marshy places.

"Flor. Maiæ initio in pratis humidis et ad ripas fluviorum ubique" (Skene). "Den of Rubislaw, 1825" (Dickie hb.). "King's Links, etc" (Knight).

This is still to be found in a few places within the parish; but it must have been far more common here before drainage became general.

Adt. Ps. In all; common in suitable localities.

R. sylvestris, Druce (*Nasturtium sylvestre*, R. Br.). Creeping Yellow-cress. Casual; native in the south of Scotland, and southwards.

"On the Inch, opposite the Dockyards. Rare" (Fl. Ab.).

Probably introduced in ballast.

R. palustris, Moench (*Nasturtium palustre*, DC.). Marsh Yellow-cress. ? Native. It is native in Forfarshire and southwards.

"Hab. in fossa aquosa prope Hangman's house, alio loco non vidi" (Skene, as "*Sisymbrium amphibium*, potius *sylvestre*," with a description from which the species can be determined).

“In a ditch between the Sugar House and Hangman’s Brae” (Beattie).

It had not been observed by anyone else in this neighbourhood until found by Mr. R. Thomson beside the Don near Grandholm Mills a few years ago. It grows in some quantity on a limited area by the side of a channel of the Don near the south side of the Cruives below Grandholm Mills. In September, 1914, I found one plant on the north bank of the Don below the Old Bridge. It may be only an alien near Aberdeen, but is perhaps native here. It was not known to occur nearer Aberdeen than Forfarshire until August, 1908, when I found a plant beside the Luther, near Laurencekirk; but in August, 1909, I found it in abundance in a mill dam on the border of Laurencekirk and Garvock, and not rare along both sides of the N. Esk.

Barbarea vulgaris, *R. Br.* Common Yellow-rocket. ? Native or denizen.

“In ruderatis, ad vias” (Skene, as *Erysimum Barbarea*). “Rubislaw Burn, Church of Old Aberdeen” (Beattie). “On banks of ditches and pastures, not common” (Cow, who gives several localities, chiefly near Old Aberdeen).

It still grows, rather locally, by roadsides and near streams, being about as frequent as formerly, it would seem. Its preference for roadsides points to its being only a denizen there; but it may be native by streams.

Adt. Ps. : B M P Nh D O. Not frequent; may be native by streams, but denizen elsewhere.

[**Arabis hirsuta**, *Scop.* Hairy Rock-cress.] Native.

Not recorded within Aberdeen.

Adt. Ps. : B M P : : : . Very local in the valley of the Dee.

[**A. petræa**, *Lam.* Alpine Rock-cress.] Native on the mountains bounding the upper valley of the Dee; rather frequent on shingle along the Dee, sprung from seeds brought down the river.

I have seen it on both sides of the Dee as far down as the Church of Banchory Devenick. It is not unlikely to have grown by the Dee within Aberdeen, before the artificial alterations below the Bridge of Ruthrieston.

Cardamine amara, *L.* Large-flowered Bitter-cress. Native by streams.

"In rivulis. Den of Robslaw" (Skene). "Den of Rubislaw" (Beattie). "Deeside, Donside" (Harvey).

It is still frequent by the Don; but rare elsewhere in Aberdeen. It was no doubt more common by the streams formerly.

Adt. Ps. In all; locally plentiful.

C. pratensis, L. Cuckoo Flower or Common Bitter-cress. Native.

"Flor. in locis humidis ad fluviorum ripas, ineunte Maio" (Skene). "Wet pastures north end of the Links," and "the Canal banks in many places" (Cow).

This is still not infrequent by the Don, and in moist soils elsewhere in the parish, though it has disappeared from the Links, as well as from many of its former habitats here.

Adt. Ps. In all; frequent by streams and in damp meadows.

C. hirsuta, L. Hairy Bitter-cress.

"In fossis" (Skene). Recorded as "common" or "abundant" in all the local lists; but under this name are included two plants (here distinguished by Beattie alone), both native in and around Aberdeen, viz. :—

C. hirsuta, L. Locally abundant on earthen and stone walls or other dry situations in spring and early summer.

C. flexuosa, With. Common on damp soil by streams, under shade of trees, and often on damp walls.

Adt. Ps. Both occur in all; and are frequent in many places.

Hesperis matronalis, L. Dame's Violet. Only a subdenizen or casual. Native in southern Europe and western Asia; long a favourite in gardens in Scotland, and easily dispersed from them.

"Powis, Old Aberdeen" (Knight hb). "On banks and waste places, not common; in wood at Raeden" (Cow).

I have often found it in hedges, near roads, and on waste ground, almost established as a denizen here and there, but easily destroyed. It is often met with as a casual on town-refuse, e.g., on the old bed of the Dee, in various sandpits, at Ferryhill, on Old Aberdeen Links, etc.

Adt. Ps. : B M P Nh D O. A local subdenizen, nowhere common.

Sisymbrium Thalianum, J. Gay. Thale Hedge-mustard or Thale Cress. Native.

"Donside, south of the Bridge" (Beattie). "Near Woodhill" (Harvey).

Rather scarce within the parish. Now almost confined within Aberdeen to dry walls and debris of quarries, its natural habitats (dry banks, etc.) having been almost swept away.

Adt. Ps. Ng B M P : (D) O. Locally plentiful.

S. officinale, Scop. Common Hedge-mustard. A denizen probably, judged by its distribution locally, though accepted as native in Britain.

"Passim ad vias" (Skene, under *Erysimum*). Numerous localities are reported by Cow. "Waste places and roadsides; frequent in lower districts" (B. G.).

A common plant by houses, and on roadsides, on waste ground and on rubbish, but always where its origin appears to have been alien.

Adt. Ps. In all; but not common, and under conditions that point to alien origin.

S. Sophia, L. Fine-leaved Hedge-mustard or Flixweed. Casual, probably introduced from the Mediterranean region into Aberdeen, among seeds of cultivated crops.

"Ad vias" (Skene). "Ground near the Lunatic Hospital" (Beattie). "Den of Gilcomston, 1807" (Knight). "At the Place of Rubislaw" (Cow).

There was no other record from Aberdeen until I found a few plants in autumn of 1907 on town-refuse on Old Aberdeen Links. In 1908 it was more frequent on the Links; and I also found it in Ferryhill and Rubislaw, and in 1910 by the railway north of Kittybrewster, and in 1914 numerous plants grew by the new road to the Links from Old Aberdeen. Very abundant in 1915 on refuse heap at Mugiemooss.

S. altissimum, L. (*S. pannonicum*, Jacq.). Native of central and eastern Europe; probably introduced locally with the seeds of cereals.

It was first observed by me, in 1893, on rubbish used to fill up the old bed of the Dee, near the Railway Station, where it was in fair abundance, and where it reappeared during several years. Since 1893 it has been found near the city every year, by waysides and on rubbish; and it was for some time one of the most common of our casuals in such habitats; but I have not seen it as a field-weed.

Adt. Ps. : : : : Nh : O. Abundant in 1911 and 1912 on a rubbish heap at Mugiemoss.

S. tanacetifolium, L. *S. orientale*, L. (S. Columnæ, Jacq.). Rare casuals at Aberdeen, where I have found them on town-refuse, on Old Aberdeen Links, in 1907 and 1909. Both are natives of southern Europe, and were probably brought here as weed seeds among cereals.

S. Alliaria, Scop. Garlic-mustard. This plant is only a denizen in this district of Scotland, growing near ruins, or in other places as an escape or a relic of former cultivation. It had probably been brought here from Continental Europe.

"In ruderatis" (Skene). "Rubislaw and Old Aberdeen" (Beattie). "Seaton" (Knight). "Walls near the House of Rubislaw, and near the Old Town Church" (Harvey). "In hedges and waste places, not common; at Rubislaw, and in the Den" (Cow). "By roadside north from Powis" (B. G.).

It is still common in one or two places in Rubislaw Den; but has almost disappeared from its other habitats in the parish.

Adt. Ps. Ng B M : : : : . Local and scarce, as a denizen.

Erysimum cheiranthoides, L. Treacle-mustard. Casual; very uncertain in its appearances here; widely spread in Europe and elsewhere as a weed of cultivated ground.

I have found it on rubbish near Old Aberdeen, in 1900; and since then occasionally on the Links, and near Fonthill Terrace in small numbers.

E. repandum, L.

Once on town-refuse in Old Aberdeen, in 1907; probably brought among seeds of cereals from south-eastern Europe.

E. orientale, Koch (*Conringia orientalis*, Dum.). Native in Mediterranean area.

Once found by me on town-refuse near Old Aberdeen in 1916, and again in 1917, and once previously by the railway between Dyce and Pitmedden, in October, 1909.

Wilckia maritima, Scop. (*Malcolmia maritima*, R. Br.). Virginian Stock.

This favourite garden annual, a native of the coasts of southern Europe, was found by me as a casual on town-refuse on Old Aberdeen Links, in 1903, and on waste ground near Bucksburn Station, Newhills, in 1907 and 1911.

Brassica oleracea, L. Cabbage, including Kales, etc. Only an outcast or casual here, though native on the western coasts of Europe, including the British Isles.

Not uncommon here on rubbish, e.g., on Old Aberdeen Links, by the railway north of Kittybrewster, etc.

B. Rutabaga, DC. Swedish Turnip. *B. Rapa*, L. Common Turnip. Frequent weeds of fields, as relicts from the last year's crop; also by roads and edges of fields, and on refuse spread on the Links and elsewhere.

B. Napus, L. Rape.

"About Torry" (Beattie). "At borders of fields, common" (Knight).

A common casual on town-refuse, e.g., on the old bed of the Dee, on Old Aberdeen Links, etc.; rare as a weed among crops. All these species of *Brassica* may be found in the parishes around Aberdeen, *B. Napus* being the least frequent in them.

B. nigra, Koch. Black Mustard. Only a scarce casual in this part of Scotland, though accepted as native in many parts of Britain; and widely dispersed as a weed of cultivation.

"Hab. in cultis, vix nisi sitam inveni" (Skene). "On a waste place out from Dee Street, etc." (Cow). "Meadow Bank," 1850 (Macgillivray hb.).

It seems to have been more common as a weed formerly, as it is now a rare casual, e.g., on the bed of the Dee and Old Aberdeen Links, on town-refuse.

B. arvensis, Kuntze (*B. Sinapistrum*, Boiss.). Charlock, Wild Mustard, or locally, Skelloch. Colonist; no doubt introduced long ago when agricultural seeds were first brought from other lands to Scotland.

"Hab. passim in cultis, arvis, et ad vias, flor. Maio exeunte ad medium Novr." (Skene).

It has long been a pernicious weed here in cultivated ground, not only because of the space and food of which it deprives the crops, but also because of its carrying on the pests (fungi and insects) harmful to turnips during the rotation until turnips are again within reach of these parasites. In all suitable habitats, too plentiful.

Adt. Ps. In all; plentiful.

B. alba, Boiss. White Mustard. Only a casual locally, though frequent on town-refuse, etc., in Aberdeen; rare as a weed of cultivation, or as a relict. It is accepted as native in some parts of Britain.

"Apud nos solummodo in hortis" (Skene). "In fields occasionally about Aberdeen; on roadside west from old town, etc." (Cow). "Near Aberdeen" (B. G.).

Its cultivation has become less frequent locally, so that it is almost solely a weed of rubbish and waste ground.

B. juncea, Coss.

Two or three examples of this Asiatic plant were found by me growing as casuals near the Railway Station at Dyce, in September, 1903.

Eruca sativa, DC. Rare casual; native of south-eastern Europe and west Asia.

A few were found by me on town-refuse on Old Aberdeen Links in 1904 and 1905, perhaps from grain-siftings.

Alyssum saxatile, L. On old garden ground or as an escape; native in eastern Europe.

Waste ground near Morningfield in June, 1910.

Adt. Ps. : : : : : O. Near a garden by road to Scotston, 1910.

A. incanum, L. A rare casual, on town-refuse; often grown in gardens in this district; native of central Europe and west Asia.

One or two examples were found by me in Rubislaw, and on Old Aberdeen Links in August, 1908, and several on waste ground at Berryden in October, 1909, where it still grew in 1910.

A. maritimum, L.

"Near Aberdeen, Prof. W. Duncan" (Smith's Eng. Fl. 1825). Reported in Hooker's British Flora (1831) as *Koniga maritima*, as found on "cliffs by the sea; near Aberdeen;" but the record must rest on a casual occurrence or on error.

I have found it on town-refuse, e.g., in October, 1915, in Ferryhill.

Erophila verna, Meyer. Common Whitlow-grass. Native, on dry places.

"In the Links among the sand, April 29, 1765. In aggeribus tectis et locis siccis" (Skene).

Still common in spring and early summer on sandhills of Old

Aberdeen Links; also in a few localities in Aberdeen, on earthen walls and dry banks; but becoming less abundant as its habitats are destroyed.

Adt. Ps. In all.

Lunaria annua, L. Honesty. Rare casual; a favourite plant in cottage gardens; native of southern Europe.

I have seen a few examples in various parts of Aberdeen, on rubbish, and in the neighbourhood of cultivated ground. Probably it occurs as an outcast or escape from gardens; and it rarely keeps its place more than a year or two.

Cochlearia officinalis, L. Common Scurvy-grass. Native by coasts.

"Ad fluminum et rivulorum ripas" (Skene). "On the Inches, and the Links south of Don" (Cow).

Still plentiful by the estuary of the Don, and by the Dee near Torry.

Adt. Ps. Ng B : : : O. Common in estuaries and on rocky coasts.

C. danica, L. Danish Scurvy-grass. Native by estuaries, not common.

"On the Links" (Cow). "On the Inch" (Knight). "Rare" (Fl. Ab.).

I have seen one or two plants by the Dee that appeared to be *C. danica*; but they were not typical. The habitat "on the Inch" has long been swept away. Cow did not know critical species sufficiently to allow his record to be of value; and I have never seen anything but *C. officinalis* by the Don, or on the Links.

Adt. Ps. Ng : : : : . Rare on the sea-coast of Nigg.

C. groenlandica, L.

I have found this form in the short turf on the steep banks near the mouth of the Dee, in the part of Nigg included within Aberdeen.

C. Armoracia, L. Horse-radish. An occasional casual, often holding its place for a few years, in waste ground, on town-refuse, etc.; common in cultivation.

"Waste places, not common; on Don-side, above the Bridge; in the Den of Rubislaw; at the Bridge of Dee" (Cow).

I have found it in various places, e.g., on the old bed of the Dee, on Old Aberdeen Links, in Rubislaw, Ferryhill, etc., in some cases

probably as outcasts or escapes, and in others from sweepings of seed-shops.

Adt. Ps. : : : Nh : : .

Camelina sativa, Crantz. Gold-of-pleasure. A frequent casual on town-refuse; and occasionally as a weed among crops; native in S.E. Europe.

"Inveni inter *Linum*" (Skene). "Ferryhill among flax. Duncan" (Knight). "Fields at Old Aberdeen, Dr. A. Fleming" (B. G.).

I find it almost every year as a casual, probably from seeds newly brought, in grain-siftings or otherwise, with agricultural seeds. It does not seem able to establish itself here.

Adt. Ps. : : : P : : O. A rare casual among crops.

Thlaspi arvense, L. Field Penny-cress. Colonist; perhaps native in central Asia. A widely dispersed weed of cultivation.

"In pratis cultis" (Skene). "In fields east the King's College; in fields west the Broadhill, abundant; in fields south from Dee Street and Union Place; at the head of George Street, etc." (Cow). "Fields about King Street, Ferryhill, etc." (B. G.).

This weed of corn-fields, and to a less extent of other cultivated ground, has been a well-established though local colonist around Aberdeen for a considerable time; but it has become much less frequent in recent years, owing to the fields in which it grew being occupied by buildings, or thrown out of cultivation from other causes. It is rather common on rubbish on the Old Aberdeen Links and elsewhere.

Adt. Ps. Ng : : P Nh : : . A scarce weed of fields.

Teesdalia nudicaulis, R. Br. Native in dry soils.

"In arenosis—Old Town Links" (Skene, under *Iberis*). "Dee-side, Aberdeen" (Beattie). "Broadhill, N. side, Hilton, etc." (Knight). "Old Town Links, 1st July, 1835" (Dickie hb.).

I have seen a few plants on dunes near the Don, but not since 1880. Some years after Allenvale Cemetery was laid out this plant appeared abundantly in the thin turf on the light soil; and it continues to thrive there. It occasionally shows itself on the banks beside the Dee and along the roads near the Cemetery; but soon disappears from them. As it is locally plentiful in the valley of the Dee a few miles to the west of Aberdeen, it was probably

native in or near the Cemetery, and found the conditions there favourable to its multiplication.

Adt. Ps. : B M P : : O. Very local, but plentiful here and there.

Iberis sempervirens, L. Evergreen Rocket. Native of southern Europe, frequently cultivated in our gardens, but rare as a casual.

A few plants were found by me on town-refuse on Old Aberdeen Links in 1905.

Lepidium Draba, L. Whitlow Pepperwort. A local casual, tending to establish itself by buds from the roots. Native of barren ground in south-eastern Europe and western Asia; but a denizen in parts of Britain.

Near Aberdeen first observed by me, in abundant flower, in 1895, on the rubbish used to fill up the old bed of the Dee near the Railway Station. It still grows there; but hardly seems to have extended its area. A portion which I brought from this place into my garden, soon spread widely through undisturbed ground, the stems appearing sometimes at several feet from those already visible. The roots were found to produce buds very freely, allowing of rapid multiplication to a troublesome extent. The flowers of this plant show a curious tendency to vary in structure, the stamens of the long pairs being peculiarly liable to be abnormal. Most often they tend to more or less complete fusion of the two stamens, which may be replaced by one; but in other flowers the pair may be replaced by three or by four long stamens. The sepals, petals and carpels also show some curious anomalies, but far less often.

In May, 1907, I found this growing on rubbish in a sandpit near Tillydrone, west of Old Aberdeen, and there also it continues to grow.

L. heterophyllum, *Bentham* (*L. Smithii*, Hooker). Smooth Field-pepperwort. Native in waste ground and natural pastures; locally plentiful.

“Ad aggeres, raro apud nos, near Gordon’s Mills” (Skene, as *Thlaspi campestre*). “Deeside above Craiglug” (Cow). “Near Gordon’s Mills” (Polson hb.).

It is still plentiful by the railway and adjoining road a little distance west of Ruthrieston Station, and on the islands in the Don below the Cruives near Gordon’s Mills; and I have seen a

few plants near the Don in Seaton and east of the New Bridge; but it is rare elsewhere within Aberdeen, its habitats having been restricted by cultivation and by the growth of the city.

Adt. Ps. : B M P Nh D O. Rather scarce, and though plentiful in a few limited localities, more common in the Garioch.

L. ruderale, L. Narrow-leaved Pepperwort. Rare casual; widely dispersed as a weed of cultivation; perhaps native in Afghanistan.

"On waste places and among rubbish, not common, near the paper mill, Donside" (Cow).

Not observed near Aberdeen again until 1903, when I found a specimen by a road in Torry, near the Victoria Bridge, and in 1914 on refuse-tip in Ferryhill. In 1907 I found several on rubbish on Old Aberdeen Links. The seeds were probably introduced for Cow's record with materials of paper, and for mine along with seeds of field crops.

L. virginicum, L. Virginian Pepperwort. Native in the Eastern United States, from which it has spread as a weed of crops and bare ground.

* Since 1890 I have found it a good many times in Aberdeen by roads and on town-refuse, e.g., by East Merkland Road, on Old Aberdeen Links, near Fonthill Terrace, etc., its seeds probably brought with those of agricultural plants.

L. incisum, Roth. Native of Siberia; but spread as a weed of fields.

A few specimens were found by me as casuals on town-refuse on Old Aberdeen Links, probably springing from grain-siftings.

L. sativum, L. Common Garden-cress. Perhaps native in Persia; very widely dispersed as a cultivated plant, and casual on waste ground.

Occasionally occurs here and there about Aberdeen, e.g., on Old Aberdeen Links, at Rubislaw, etc.

Adt. Ps. : : : : Nh : : . Rare casual.

Capsella Bursa-pastoris, Med. Shepherd's-purse. A widely dispersed and abundant weed of cultivated soil and of waste places near houses, by roads, etc. Admitted as native in British floras; but almost certainly not native in the counties near Aberdeen.

"Passim in cultis" (Skene, as *Thlaspi*). In all subsequent lists.

Very common in suitable habitats ; and varying greatly in size, habit, and arrangement and forms of leaves.

Adt. Ps. In all ; under the conditions mentioned above.

Coronopus procumbens, Gilib. (*Senebiera Coronopus*, Poir.). Swine's-cress or Wart-cress. A native of Europe, including some parts of Britain ; but not so near Aberdeen.

"On the wet brae below Torry, rare" (Cow).

There is no other record of its having been observed in or near Aberdeen ; and it certainly has not grown at Torry for many years ; but this record may be correct, as the plant occurs in several localities on the coasts of Aberdeenshire and Banffshire, always where boats are pulled up, as on the slope at Torry. Its restriction to such places seems to indicate that its seeds had been brought in the boats from similar habitats elsewhere. Possibly Cow's specimen was sprung from seed brought recently from some place, the plant failing to reproduce or establish itself.

Adt. Ps. : : : : (D) : . Mr. Cobban, in October, 1909, showed me a dried specimen from Dyce, where it was a common weed in his garden.

Neslea paniculata, Desv. Casual.

Not uncommon in recent years on refuse, on Old Aberdeen Links, etc. ; probably brought with seeds of cereals from the Mediterranean area.

Adt. Ps. Found by me in 1883 by roadside at north end of the New Bridge of Don, the first occurrence near Aberdeen, and in October, 1915, on waste ground near Bucksburn Station.

Rapistrum rugosum, All. Casual.

Frequent on town-refuse, since 1893, when I first found it, on the old bed of the Dee. I have seen it less often as a weed by roadsides and in crops ; but it is still only a casual. Its seeds are probably brought from central or eastern Europe with those of cereals.

R. glabrum, Host. Casual. Native of Austria.

A fruiting plant was found by me on town-refuse by road to Links from School Road.

[*R. perenne*, Bergeret.] Casual. Native of S.E. and central Europe.

A plant appeared in 1908 near Dyce Station, and in 1910 fruited, allowing its identification to be made sure.

Bunias orientalis, L. Native of S.E. Europe, dispersed by fruits among the seeds of cereals.

In 1915 I found this in a grass field west of Tillydrone, and by the road from School Road to Old Aberdeen Links.

The plant was first seen by me locally near Dyce Station where two examples have continued to grow and to flower every year, though cut down before ripening seeds. In September, 1908, I saw a large clump seeding freely on waste ground a little way north of Kintore Station, where rubbish is thrown out.

Crambe maritima, L. Sea-kale. Native on the south and west coasts of Britain; and cultivated in gardens in other parts of the country.

"Beach at Aberdeen" (Laing hb., about 1837).

In the absence of any other record from the coasts of this part of Scotland, this single example must be regarded as a casual, possibly from some garden.

Cakile maritima, L. Sea-rocket. Native on the loose sands along the sea-front of the dunes.

"In arena mobili maritima" (Skene, as *Bunias Cakile*). "On the sea-shore near the mouth of the Don" (Harvey). "On the coast at Donmouth, and along to Footdee" (Cow).

It is still to be found there; but has become a good deal less common than it was forty years ago. Perhaps one reason for this is the lessening of the surface suitable to its needs, owing to the much greater abundance of the Lyme-grass (*Elymus*) along the sea-front in recent years.

Adt. Ps. Ng? : : : O. More frequent to the north.

Raphanus Raphanistrum, L. Wild Radish, locally called Runch. Native of southern Europe, and very widely dispersed as a weed of cultivated soil. An only too plentiful colonist in Scotland, though more local than the Charlock, which it sometimes rivals as a pernicious weed.

"Passim arvis, pestis" (Skene). Cow records it from several localities in Aberdeen, some of which are now covered with streets.

It is peculiarly frequent in some of the fields near King Street, to the north of School Road. In some it grows almost unmixed with Charlock, in others they are more or less mixed, and in others the Charlock prevails almost to the exclusion of the Runch, the difference in colour of the flowers making the relative proportions of the two in the fields very evident even from a distance. The

variety with almost white flowers appears occasionally in fields and on waste ground.

Adt. Ps. In all; rather local, but often far too abundant.

R. sativus, L. Garden or Cultivated Radish. Known only as a cultivated plant; perhaps originally from Asia; widely dispersed by cultivation.

An occasional casual on town-refuse and on waste ground in and around Aberdeen.

RESEDACEÆ.

Reseda alba, L. Native in central and southern Europe; but a very rare casual on town-refuse near Aberdeen, perhaps brought with the seeds of cereals.

Once or twice found by me on Old Aberdeen Links, and on refuse in sandpits east of King Street near Old Aberdeen.

R. lutea, L. Wild Mignonette. Casual about Aberdeen, almost always on rubbish; native of Continental Europe, but very doubtfully so in the British Islands.

"Inches" (Knight). "On the Inch opposite the Dockyards, rare, 1833" (Dickie hb.). "Near King Street, Dr. Macgillivray" (P. M.).

I have found it several times on the old bed of the Dee in 1890, on Old Aberdeen Links in various years since 1896, in one or two sandpits near King Street now filled up.

Adt. Ps. : : : P Nh D : . Near Dyce Railway Station.

R. Luteola, L. Dyer's Weed. Not native near Aberdeen; probably a survival, as little more than a casual, from the time when it was cultivated as a useful plant. Accepted as native in southern Scotland.

"Ad vias. On the brae from the hangman's house to Footdee Church" (Skene). "In the side of a field south from Donmouth, and north from Brick-kilns, rare" (Cow). "Road leading from King Street Road to the Brick-kilns, August, 1838, Dr. A. Fleming" (Dickie hb.).

I have observed it occasionally, but rarely, in fields west of Old Aberdeen. It is extremely uncertain in its appearances here; and rarely continues more than a year or two in any locality. It appears also on town-refuse at times.

Adt. Ps. : : : P Nh D O. More frequent in the northern parishes. I found it in abundance on waste ground near Bankhead

Station in Nh ; but it is most uncertain in its appearances, and only a casual.

R. odorata, L. Common Mignonette.

This favourite garden flower occasionally occurs as a casual on refuse, on the Links, in sandpits, and elsewhere, no doubt derived from gardens or shop-sweepings.

CISTACEÆ.

[*Helianthemum Chamæcistus*, *Mill.* Common Rock-rose.]
Native.

I have no record of its having been found within Aberdeen ; but it must almost certainly have been so before its natural habitats were altered by man. The nearest existing habitat is on the edge of a field by the Don, a little way east of the New Bridge.

Adt. Ps. In all ; usually very local, but plentiful on many parts of the dry braes along the sea-coast.

VIOLACEÆ.

Viola palustris, L. Marsh Violet. Native in wet places.

" Moss of Ferryhill " (Knight, and " 1834 " in Dickie hb.).
" In Pitmuxton Marsh " (Cow).

I have seen it on Stocket Moor ; but the cultivation of the moor, about 1880, extirpated it there. A few plants may still be found within Aberdeen on the shingle and wet slopes along the Dee, near Ruthrieston ; but it is probably extinct almost everywhere else in the parish, though it must have been common before drainage of the moors and swamps.

Adt. Ps. In all ; common in suitable habitats.

V. odorata, L. Sweet Violet. Casual ; usually as a relict from cultivation, or outcast or straggler from a garden, and rarely remaining for more than a year or two.

" Den of Rubislaw " (Cow).

I have occasionally found it on ground lapsed from cultivation, on rubbish, and by roads, in various places about Aberdeen, e.g. in Rubislaw and near Old Aberdeen.

Adt. Ps. " Cove " (Beattie).

V. canina. Dog Violet.

In the wide meaning of these names, as used in all published records of the local flora, the " Dog Violets " are stated to be " common " or " very common " ; and, in suitable habitats, they

still are frequent locally ; but the suitable habitats have been very much circumscribed by cultivation of the soil and by extension of streets. Of the forms included under the names, now generally treated as species, the following have been observed in Aberdeen :—

V. sylvestris, *Kit.* (*V. Reichenbachiana*, Jord.)

V. Riviniana, *Reichenb.* and

V. canina, *L., s. str.* (*V. ericetorum*, Schrad.).

The first two include the plants with lilac and purplish-blue flowers, so frequent by roads, in dry natural pastures and in woods, even close to the city, their flowers being very noticeable during spring and early summer. After the middle of June the flowers are not less numerous than before, but they are cleistogamous, remaining like unopened buds and very easily overlooked. The two “species” are difficult to distinguish from one another. *V. Riviniana* appears to be much the more common near Aberdeen.

Adt. Ps. More general than in Aberdeen, showing the same relative frequency.

V. canina, *s. str.*, is the more frequent by the Dee, where it abounds on the shingles, and also on the dunes along the coast ; but it is not common inland. Its flowers are a purer blue in colour, and its leaves are narrower than those of the other two. Like them, its flowers are almost all cleistogamous after June. It is probably the plant indicated by the record in the Botanist's Guide of “*V. pumila*, Vill. Links of Aberdeen.”

Adt. Ps. Ng B M P : : O. Local, but frequent by the Dee, and on dunes.

V. tricolor, *L.* Wild Pansy or Heartsease. Native, but often more abundant in cultivated ground than in its natural habitats.

Common in pastures, on waste ground, and by roads and hedges, varying much in form of leaves, and in size and colour of flowers. Usually annual, sometimes biennial. This is mentioned in all local records.

Adt. Ps. In all ; common, in many places very abundant.

V. arvensis, *Murray.* Field Pansy. Plentiful as a weed in cultivated ground and on bare waste ground ; but also growing, though less plentifully, on dry banks, and among thin herbage, its distribution thus indicating that it may be native, though finding the conditions of cultivated soil favourable to its increase and dispersal.

"Corn-fields, common" (P. M.) Not mentioned by any other local botanist, though a common weed of cultivation.

Adt. Ps. In all, a common weed of fields and gardens, and occasionally in suitable habitats beyond these limits.

V. Curtisii, *Forster*. Sea-side Pansy. Native on the dunes, and occasionally on dry banks beyond the Links, even a few miles inland.

It is the most common pansy of the sandy links on the east coast of Scotland, so far as I have observed, though not recorded from the east side of Scotland until 1885 by myself (Scot. Nat., p. 79), from near Aberdeen. In this district the flowers vary much in colour; but are not often wholly yellow.

Adt. Ps : : : : O. Links north of the Don, often plentiful.

[**V. lutea**, *Hudson*. Mountain Pansy.] Native.

"On a brae at Pitmuxton, rare" (Cow). There seems to be no other record for Aberdeen; and Cow was not sufficiently careful in distinguishing between similar species to make his record trustworthy.

Abundant in some parts of the valleys of the Dee and Don, but not near the coast.

I once found the purple-flowered variety (*amœna*) in Peterculter, a little west of Countesswells; but have no other note of its occurrence even in the parishes adjoining Aberdeen.

V. cornuta, L. Horned Pansy. Casual or subdenizen, originating probably from garden outcasts; native of southern Europe.

A large patch had established itself as a denizen by an old road near the present Rubislaw Den South; but was destroyed a few years ago, when that street was laid out. I found a small patch on a bit of waste ground by Stocket Road, near its west end in October, 1907. It grew in small quantity by the small stream west of Auchmill, Newhills, in October, 1913. This pansy is of rather common occurrence in patches by roads and streams or ditches in various parts of Aberdeenshire and Kincardineshire; and seems likely to establish itself as a permanent denizen.

POLYGALACEÆ.

Polygala vulgaris, L. Common Milkwort. Native in natural pastures.

"In ericetis et locis siccis sterilioribus" (Skene). "Pitmuck-

ston Moss, 1807" (Knight hb.). "On the north end of the Broad-hill and Links; in the Den of Rubislaw; on Donside below the Bridges" (Cow).

The aggregate *P. vulgaris* referred to in these records is extremely common on grassy heaths and in natural pastures in many places in the district around Aberdeen, and must have been so within the parish formerly, though now scarce in it. Of the forms or "species" included under the aggregate the following have been found by me locally :—

P. vulgaris, *L.*, *s. str.*, near the Dee, near Hazlehead, and near Hilton.

Adt. Ps. : B : : : O. Rather scarce.

P. serpyllacea, *Weihe*, in the same localities as the former, and also on the sand-dunes near the Don.

Adt. Ps. In all; very abundant on Scotston Moor, and in a good many other localities; extremely varied in colour of the flowers.

[*P. oxyptera*, *Reichenb.*] occurs on Scotston Moor, near the Dee at Murtle, on moors in Nigg, and probably elsewhere, though not recorded by name; but it has not been noted within Aberdeen.

CARYOPHYLLACEÆ.

Dianthus barbatus, *L.* Sweet-William. Casual, escaped from cultivation, having been long a favourite in gardens in Scotland; native of southern Europe, in mountain pastures.

"Den of Rubislaw; and about Sunnybank; not indigenous" (Cow).

I have seen it growing by the Dee near Allenvale. It is a rare casual.

Adt. Ps. : B : : : : . On shingle by the Dee above Ardoe.

[*D. deltoides*, *L.*] was found by me near the mouth of the burn from Denmore on 16th August, 1916, in one place in flower, in fair quantity.

Saponaria Vaccaria, *L.* Probably a native of Asia Minor, and a common weed of cultivation in south-eastern Europe; locally a casual on rubbish, and as a rather scarce weed in fields. It is no doubt introduced with the seeds of cereals or other field crops, such as tares, among which it is not rare.

It was noticed near Aberdeen, for the first time, by me in 1878, in a corn-field near Old Aberdeen; and I have frequently found it

since then in Aberdeenshire, especially in recent years, so that it may become a colonist of the same type as the Corn-cockle. It has not been recorded from the immediately adjacent parishes.

S. officinalis, L. Common Soapwort or Fuller's-herb. Rare subdenizen, probably escaped or outcast, or survival from the period when this native of central Europe was cultivated here as a useful plant.

"Solummodo (uti scio) ad Hangman's Brae" (Skene). "On waste places and waysides, in the Den of Rubislaw; on Donside above the bridge" (Cow). "Occasionally by roadsides, but always the outcast of a garden" (P. M.).

I have only twice met with this plant within Aberdeen, both being near gardens. Though perennial it does not seem able to establish itself near the town; but it does so in a few localities in the neighbouring counties. Close to Aberdeen it appears to have been more frequent formerly, perhaps because more often cultivated then.

Adt. Ps. : B : P Nh : : . A rare subdenizen.

Silene latifolia, *Rendle et Britten* (*S. Cucubalus*, Wib.). Bladder Campion. Accepted as native in the greater part of the British Islands; but very doubtfully so near Aberdeen, where it can scarcely be regarded as an established resident.

"Gallowhill" (Knight). "Near Powder Magazine, and near New Pier, 1834" (Dickie hb.). "Footdee, banks of Dee and Don, etc." (B. G.).

It is a scarce plant about Aberdeen, usually appearing singly (e.g., near Rubislaw and Old Aberdeen), by a field, or on rubbish, and rarely keeping its place for more than a year or two.

Adt. Ps. Ng : : P Nh D O. Scarce and uncertain.

Var. *puberula*, *Syme*.

"The hairy variety I found in a field at Broomhill, 1823" (Harvey).

I once found this variety by a field near Aberdeen; and have gathered it twice or thrice in Aberdeenshire, though not in the parishes adjacent to the city.

S. maritima, *With*. Sea Campion. Native on shingle by the Dee, and plentiful on the rocky coast of Kincardineshire.

"Hanc plantam invenio in ripis arenosis Dee" (Skene). "Banks of Dee and along the coast; on the Inch. Abundant" (Fl. Ab.).

It is now very scarce by the Dee within Aberdeen, having been almost extirpated locally by the alterations artificially made in the estuary ; but it is common on banks of sand and pebbles in many places along the Dee, beyond our boundary.

Adt. Ps. Ng B M P : : : .

S. anglica, L. English Catchfly. Locally a casual on town-refuse, probably brought among the seeds of cereals from continental Europe, though accepted as native in different localities in southern Britain.

Found by me in 1893 on the old bed of the Dee, and in 1903 and subsequent years on refuse on Old Aberdeen Links and elsewhere, but rarely.

Var. *quinquevulnera*, L. On town-refuse on the Links, near the Broadhill, in 1903 ; a rare casual.

S. conica, L. Striated Campion. A rare casual here.

In 1904 I found a few plants in a field of oats near the Bay of Nigg, no doubt introduced with seed, perhaps from Fife, or from some other locality in Scotland where it occurs as a common field-weed.

S. cretica, L. Native of southern Europe.

Once found, as a weed in my garden, in Old Aberdeen, in 1907, possibly brought in town manure.

S. laeta, A. Br. Native of the Mediterranean coast of Africa.

Once on town-refuse on Old Aberdeen Links, in 1903.

S. dichotoma, Ehrh. Casual on rubbish and as a weed in grass fields and among cereals ; probably introduced with agricultural seeds from central or south-eastern Europe.

First found by me in 1893, on the old bed of the Dee ; afterwards once or twice in fields near Old Aberdeen.

Adt. Ps. Ng : : : (Nh) : : . A few plants in a field near Bay of Nigg, in 1904. It is still very scarce near Aberdeen ; but I have found it almost as a colonist in two or three places in Aberdeenshire, and in the valley of the Spey.

S. noctiflora, L. Night-flowering Campion. Casual.

On town-refuse, since 1904, on Old Aberdeen Links, and common in 1913 on a rubbish-tip near Fonthill Terrace ; probably from grain-siftings. It is a common weed of crops in many countries, including England and the south of Scotland.

Lychnis Flos-cuculi, *L.* Ragged Robin. Native in wet ground.

"In pascuis humidioribus" (Skene). "Den of Rubislaw; Gilcomston Dam" (Knight). "Meadow west the Snow Church" (Cow).

Though it must have been abundant within the parish before drainage of the surface, it is now extremely scarce locally, lingering here and there, as by the Don, and by ditches, and in moist hollows.

Adt. Ps. In all; generally distributed in suitable habitats; often plentiful locally.

L. alba, *Miller*. White Campion. Probably native, but perhaps alien.

"Ferryhill," "Roadside between Gordon's Mills and the Canal" (Beattie, as white *L. dioica*) (Knight). "On a bank near the Printfield, with white flowers" (Cow, under *L. dioica*). "About Robslaw" (B. G.).

It is nowhere common near Aberdeen, and is uncertain in its appearances in any locality. Occasionally it may be found by sides of fields or among grass grown for hay, as at Old Aberdeen, and near Rubislaw; but it grows more often on town-refuse and on waste ground, as on the old bed of the Dee. Its habitats thus throw doubt on its being native locally, though accepted as such in most parts of Britain.

Adt. Ps. Ng B (M) P Nh : O. The same remarks apply as for Aberdeen.

L. dioica, *L. (L. diurna, Sibth.)*. Red Campion. Native, in thickets usually.

"In rupibus Don" (Skene). "On the braes above the Bridge of Don, abundant" (Cow).

It is still abundant on the rocky banks on both sides of the Don above the Old Bridge. I have also seen it, as an alien, on the old bed of the Dee, near the Railway Station.

Adt. Ps. Ng B M P : (D) O. Locally common on the rocky coast of Kincardineshire, and on rough banks by Dee and Don. Often grown in old gardens.

L. Githago, *Scop.* Corn Cockle. Casual, or uncertain colonist, as a weed in fields or on rubbish; introduced with seeds of cereals and tares; possibly native in south-eastern Europe, but a weed of cultivation very widely dispersed.

"Passim inter segetes" (Skene). "Carden's Howe, 1807" (Knight hb.). "In corn fields, among wheat and flax, occasionally about Aberdeen" (Cow). "Cornfields, especially of wheat, frequent" (P. M.). "Frequent in cultivated fields throughout the district" (B. G.).

This might now be called one of the rarer weeds of cultivation around Aberdeen, tares being almost the only crop in which one ever sees more than a very few flowers. Its continued appearance seems to be due to fresh introduction of seeds with tares and other agricultural seeds; and its greater frequency formerly was probably due to its seeds being often brought with wheat, while that cereal was cultivated near Aberdeen. Since wheat ceased to be grown locally, before 1870, tares seem to be the seeds with which the Corn Cockle is chiefly introduced. It does not appear able to establish itself as a colonist in this part of Scotland.

Adt. Ps. Ng : M P Nh D O. Sometimes fairly common among tares; and occasionally among other agricultural crops and on waste ground.

Cerastium tetrandrum, *Curtis*. Four-cleft Mouse-ear-chickweed. Native on sandhills and rocks by the coast; less common on dry soils inland.

"Aberdeen Links, 1801" (Knight hb.). "Inches, 1833" (Dickie hb.). "On sandy shores and gravelly soils" (Cow). "On the sandhills; on the Inch, etc." (Fl. Ab.).

It is still plentiful on the sandhills near the Don; and also grows in crevices between stones and rocks near the mouth of the Dee, east of Torry; and it may also be found on walls and dry banks throughout the parish.

Adt. Ps. Ng B : : : O. Almost confined to the coasts.

C. semidecandrum, *L.* Little Mouse-ear-chickweed. Native, on dry soils.

"Crescit in muris, tectis, locis siccis vel arenosis" (Skene). "Dykes between Stocket and Aberdeen, Dykes of Leslie's garden" in Old Aberdeen (Beattie). "Links near the mouth of the Don" (Cow). "At the South Pier, Old Town Links, Inch, etc." (B. G.).

This is very plentiful in spring and early summer on the sandhills and other dry soils of the Links; also among stones and rocks near the mouth of the Dee; and on dry banks and walls inland, though not so abundant on these.

Adt. Ps. Ng B M P : : O. Common locally.

C. viscosum, *L.* (*C. glomeratum*, Thuill.). Broad-leaved Mouse-ear-chickweed. Native.

"Fields, pastures and waysides, common; on the Links, north the Broadhill; at Kittybrewster's toll, by the roadsides, etc." (Cow).

Somewhat local, although in some places abundant, especially in shallow ditches that are dry during most of the summer.

Var. **apetalum**, *Dum.*, with petals very small or absent, may be found occasionally, though apt to be overlooked as merely not in flower.

Adt. Ps. In all; locally plentiful.

C. vulgatum, *L.* (*C. triviale*, Link). Narrow-leaved Mouse-ear-chickweed. Native in many places, and very frequent as a weed of cultivation and on waste ground and rubbish.

"In pratis et in cultis, passim" (Skene).

Common in all kinds of ground. It does not show any very marked varieties locally.

Adt. Ps. In all; abundant.

C. hirsutum, Tenore.

Of this plant of southern Europe I found two or three vigorous plants in an old sandpit near Tillydrone in 1905. They continued to spread slowly until covered up with rubbish in 1908. The plant is so inconspicuous that it seems unlikely to be cultivated; so the mode of introduction to the sandpit must remain uncertain.

C. arvense, *L.* Field Mouse-ear-chickweed. I have no certain record of this as found native within Aberdeen parish; but it may very probably have been so, as it is native in the adjacent parishes, in dry fields.

"In a field near the north end of the Bridge of Dee" (Knight, and B. G.). This locality may have been within the parish, and in any case must refer to a habitat close to the boundary.

In 1891 I placed one or two plants from near Murtle on a sloping bank by a field west of the Chanonry, Old Aberdeen, where they have spread a little.

Adt. Ps. : B M P Nh D (O). Very local; but somewhat plentiful in one or two limited areas.

Stellaria media, *L.* Common Chickweed. Apparently native in broken ground, though seldom common there; very plentiful as a weed of gardens and fields, on waste ground, and on rubbish.

"Passim in umbrosis, cultis, ad vias" (Skene).

A very common weed; varying considerably in size, in leaf-stalks, and in the sepals being glabrous or hairy; but I have not found any named varieties near Aberdeen; although the petals vary considerably in size, and the stamens vary from three to five, with sterile filaments added at times.

Adt. Ps. In all, plentiful.

S. Holostea, *L.* Greater Stitchwort. Native, on rough banks usually.

"Passim in sylvis et incultis" (Skene). "Rubislaw; banks of Don near the Bridge" (Harvey).

Still common in both localities; but rare in other parts of Aberdeen.

Adt. Ps. In all; local, but common in some places.

S. graminea, *L.* Lesser Stitchwort. Native.

"Passim locis siccioribus" (Skene). "On dry pastures and heaths, common; on the Links north the Broadhill; in the Den of Rubislaw" (Cow).

Still in small quantity on the Links, and common by roads and in dry natural pastures elsewhere.

Adt. Ps. In all, locally plentiful.

"*S. glauca* (Glaucous Marsh Stitchwort). In ditches and wet marshy places, abundant" (Cow). This is certainly an error of identification by Cow; as the species does not grow near Aberdeen.

S. uliginosa, *Murray*. Marsh or Bog Stitchwort. Native in wet places.

"In fossis et locis udis" (Skene). "Stocket Moor, 1834" (Dickie hb.).

Too general to require mention of localities; though certainly restricted by drainage and by extension of the city.

Adt. Ps. In all; common and generally distributed.

Arenaria serpyllifolia, *L.* Thyme-leaved Sandwort. Native, not common.

"Raeden" (Knight). "Old walls near Westfield and near Woodhill, and dikes at Broomhill, 1827" (Harvey). "Tops of walls behind Kittybrewster toll-bar: walls near Raeden; near Ferryhill Moss" (Fl. Ab.).

I have not seen this plant in these localities; but have found it

occasionally on dry banks, and on earthen walls and bare soil by roads, as at Tillydrone.

Adt. Ps. : : : P Nh D O. Local, and seldom common.

Var. *leptoclados* (*Guss.*) was found by Mr. John Sim within Aberdeen.

I have not seen it here; but have found it just outside the limits of the parish, in Newhills, and plentifully on refuse-heaps at the quarries north of the Don near the bridge at Persley.

[*A. trinervia*, *L.* Three-nerved Sandwort.] Native in woods and thickets.

Local and scarce in this neighbourhood. Not known to have been found within Aberdeen; though it may have not improbably grown here under natural conditions of the surface.

Adt. Ps. : : (M) P : : : .

Honkenya peploides, *Ehrh.* Sea Purslane. Native on sea-coast.

"In arena mobili ad maris littora, 29th July, 1763, in great plenty betwixt Dee and Don; it is now in seed" (*Skene*). "On the Inches, beach at Torry, and opposite New Pier" (*Cow*).

Alterations made in the estuary of the Dee have almost extirpated it by that river; but it is still common on the Links.

Adt. Ps. Ng B : : : : O. On the sea-coast; common, locally abundant.

Sagina maritima, *Don.* Sea Pearlwort. Native on coast and by estuaries.

"Coast near Aberdeen, *G. Don*" (*Eng. Fl.*, I., 239). "Inch" (*Knight*). "New Pier, Inches and Old Town Links, 1834" (*Dickie hb.*). "Tidal line at railway viaduct" by the Dee (*B. G.*).

Alterations in the estuary of the Dee have greatly lessened its prevalence there; but it is still common on the low ground of Old Aberdeen Links, where liable to be overflowed by high tides. It is probable that the changes at present being carried out on the Links will render the species scarce there also, if they do not lead to its local extinction.

Adt. Ps. Ng : : : : : . In crevices of rocks, on bare soil, etc.

S. apetala, *Arduino.* Small-flowered Pearlwort. Probably native.

"On the Inches, Dr. Macgillivray" (P.M.). This refers certainly to *S. maritima*, not to *S. apetala*.

Assured evidence of the latter species within the parish was supplied by my finding several examples growing on an old wall by a road near Kepplestone in October, 1907, and strong, much branched plants in abundance on the site of Rubislaw Bleach-works in the autumn of 1909.

In September, 1912, a few grew on bare made-up soil to the east of Sunnybank House near the Spital.

Adt. Ps. Ng : : : D O. Plentiful in July, 1907, on bare ground among piles of wood at Dyce Railway Station, on cinders strewn a few months previously; but it has become scarcer since 1907. Mr. Cobban informs me that he found it here in 1894. In October, 1909, I found several plants on an old refuse-heap in Persley Quarries, and in September, 1911, it was fairly plentiful on an old road in Cove Quarry, Nigg. The situations in which alone it has been observed in and near Aberdeen cast doubt on its source here, though it *may* be native, but overlooked owing to its inconspicuous appearance.

***S. ciliata*, Fr.** Ciliated Pearlwort. Native.

Recorded by Mr. John Sim from Cornhill, found in September, 1864.

I had seen no example from within our limits until September, 1915, when I found it in plenty in Burnside Nurseries among young conifers.

Adt. Ps. Ng : : : : . Found by me just beyond the boundary on a dry bank on the coast at Greyhope Bay, in autumn 1903, and on the high bank near the Bay of Nigg west of Girdleness Light-house in 1909.

***S. procumbens*, L.** Procumbent Pearlwort. Native.

"Passim in humidiusculis" (Skene).

On all kinds of soil, waste or bare places, walls, etc.; very common, and generally distributed.

Adt. Ps. In all; very common.

***S. subulata*, Presl.** Awl-leaved Pearlwort. Native on dry soils, scarce.

"Rubislaw Quarries" (Knight). "Banks of Dee, etc., not infrequent" (Fl. Ab.).

I have not seen any example from within the parish, where it must have been much limited by surface changes.

Adt. Ps. Ng B : P : : O. Very local ; but occasionally not scarce. "Girdleness" (Knight). At the Bay of Greyhope, with *S. ciliata*, and roadside between Loirston and Altens in Nigg ; Persley Quarries, on debris.

S. nodosa, Fenzl. Knotted Pearlwort. Native in damp places ; but very local, and now very rare within Aberdeen.

"I first met with the *Spergula nodosa* pretty frequent in damp places in the Old Town Links, July 29, 1763" (Skene). "Meadows N.W. side above the Dam of Gilcomston" (Beattie). "Links" (Harvey). "On the Links north the Broadhill ; on the Inches" Cow). "Old Town Links, and gravelly banks on Stocket Moor" (Knight and Fl. Ab.).

Extirpated from the Inches and from Stocket Moor upwards of thirty years ago, the Knotted Pearlwort still lingers on the swampy north part of Old Aberdeen Links ; but its existence is in danger there also.

Adt. Ps. : : : : : O. In marshes in two or three places in Old Machar ; locally not uncommon.

Spergula arvensis, L. Corn Spurrey ; locally called Yarr. Colonist.

"In cornfields, common, near the Bridge of Don, and west the Broadhill ; at Rubislaw ; at Hilton ; etc." (Cow).

The forms usually included under *S. arvensis* are so distinct as to warrant their being regarded as distinct species. Two occur here :—

S. sativa, Boenn. Very plentiful on cultivated soil as a weed among cereals and root-crops ; introduced with seeds, probably from northern Europe, where it is the common form. It is common on waste bare ground near fields ; and has almost become a denizen on bare places by streams, in rabbit warrens, etc., where newly exposed soil permits its growth.

Adt. Ps. In all ; a far too abundant weed.

S. vulgaris, Boenn. Though I often looked for this plant around Aberdeen, I never found it until 1893, when I came on one or two examples on the old bed of the Dee, near the Railway Station. I have since then found it occasionally on rubbish on the Links, but not as a field-weed within the parish. From 1894 onwards I have seen it as a weed among crops in a good many parishes in various parts of the counties near Aberdeen. It usually is scattered among the other form ; but occasionally it is rather

common ; and it appears to be becoming more common. It is the form more frequent in the southern half of Europe, including England. The distribution of the two suggests that Scotland received its agricultural seeds rather from northern than from southern Europe.

Adt. Ps. Ng : : P Nh D O. Local and scarce in all five parishes.

Spargularia rubra, *St. Hil.* Field Sandwort-spurrey. Native.

“ Passim ad vias ” (Skene). “ On dry gravelly soils, common ; on the Inches ; on the sea-beach at Torry, opposite new pier ; on the side of a road, back of Powis, leading to the Canal ” (Cow). Noted as “ common ” by Dickie (Fl. Ab.) and by P. Macgillivray (1853).

I have not seen it common within the parish north of the Dee, though a few plants may be found on waste ground or by roads in most places occasionally. It is very abundant on the sloping south bank of the Dee between the Victoria and Suspension Bridges.

Adt. Ps. In all ; but seldom plentiful.

S. marina, *Camb.* Sea-side Sandwort-spurrey. Native on the coast, sandy or rocky, where the soil contains salts from sea-water or spray.

“ In arena maritima, near the Old-town Brickwork, where the *Glaux* is, August 1, 1763 ” (Skene). “ Links near Brick-kilns ” (Harvey, 1827). “ Sea coast in many places, common on the Inches, etc.” (Cow).

The aggregate near Aberdeen includes two forms, distributed thus :—

S. media (*Pers.*) *Presl* (*Alsine marginata*, Reich.). Not plentiful, but a few in the wetter turf of the Links near the Don ; also in crevices of piers and rocks south of the Dee. Probably on the shores of the estuary, and on the Inches formerly.

Adt. Ps. Ng B : : : : . On rocky coast, sparingly.

S. salina, *Presl* var. *neglecta* (*Kindb.*). Still fairly common on the Links near the Don where liable to be overflowed by the highest tides. Rare by the Dee near Torry ; but probably frequent beside the estuary and on the Inches before 1860.

PORTULACACEÆ.

Claytonia perfoliata, Donn. Native in N. America, from British Columbia to Mexico ; cultivated in gardens occasionally, and

establishing itself as a weed. A subdenizen in one or two gardens in Old Aberdeen.

Adt. Ps. : : : : (Nh) : : . "As a weed in garden at Bankhead, 1893" (J. Cobban). Established as a denizen, Uppermill, in Kintore.

[*C. sibirica*, L.] A native of N. Asia ; cultivated occasionally in gardens or shrubberies, in which it readily tends to establish itself as a denizen, by seeds, on damp bare soil.

Not recorded from within Aberdeen. Well established in the Corbie Den, in M.

Montia fontana, L. Water-blinks. Native in wet places.

"Passim in locis humidis" (Skene). "Old Town Links, common, 1835" (Dickie hb.).

This must have been much more common formerly.

Adt. Ps. In all ; very general, and in many places abundant.

HYPERICACEÆ.

Hypericum Androsæmum, L. Tutsan. A rare casual locally ; though native in great part of southern Britain.

"Den of Rubislaw" (Cow). Probably planted there.

H. calycinum, L. Large-flowered St. John's-wort, or Aaron's-beard. A rare casual. Native in Greece ; long cultivated in British gardens.

Found by me, in 1907, in Rubislaw Quarry.

H. perforatum, L. Perforate St. John's-wort. Native ; but apparently extinct in Aberdeen.

"Den of Rubislaw, 1809" (Knight hb.). Mentioned from the Den by Harvey, Cow, and Dickie. "On Donside above the Bridge" (Beattie and Cow).

I have never seen it wild in the parish, but have seen a specimen that came up in 1903 as a weed in a garden in Carden Place. The record for Donside may be in error for *H. hirsutum*, which grows there, as was noted by Beattie, but which was not mentioned by Cow.

Adt. Ps. : : : : P : : : . Rare.

H. quadrangulum, L. Square-stalked St. John's-wort. Native, in wet soil.

"In palustribus" (Skene). "Den of Rubislaw" (Knight and Cow). "Gilcomston Dam" (Knight, Fl. Ab. and P. M., 1853). "By the side of the burn at Robslaw Bleachfield" (B. G.).

Drainage must have greatly reduced its prevalence in Aberdeen. I have seen it growing within the parish only by the Don above Woodside, where it is not common.

Adt. Ps. : B M P (Nh) D : . Local and seldom common.

H. humifusum, *L.* Trailing St. John's-wort. Native, in thin pastures.

"Rubislaw, Morningfield, Craiglug" (Beattie). "On walls, not unfrequent" (Knight). "Fields at Broomhill" (Harvey). "On the roadside leading to Hilton from Kittybrewster Toll" (Cow).

It seems almost extinct now in Aberdeen, as a result of agriculture, and of extension of streets. I have only once found it here, in 1902, on a new road, now a street, a little west of the old Boat-house, north of Kittybrewster.

Adt. Ps. (Ng) : M P Nh D O. Not common.

A few plants of *var. decumbens* grew on quarry refuse north of Persley Bridge in July, 1915.

H. pulchrum, *L.* Upright St. John's-wort. Native on dry poor soils.

"In sterilioribus frequens" (Skene). "Den of Rubislaw; on Donside above the Bridge" (Cow).

Its habitats have been much limited by agriculture, so that it is now a scarce plant within the parish. I have found it sparingly, about Hilton and Rosehill, on the old quarries at Rubislaw, and on the small remains of moor beyond them.

Adt. Ps. In all; widespread, on moorlands often frequent.

H. hirsutum, *L.* Hairy St. John's-wort. Native, on rough banks. Rare.

Found by me, in 1902, in small quantity by the Don above Woodside.

Adt. Ps. (Ng) B M P Nh D O. Rather frequent by the Dee and by the Don in O, "Don Braes" (Knight, and "1819," Macgillivray hb.), not so elsewhere.

MALVACEÆ.

No species of this family has a claim to be regarded as native in this part of Scotland.

Malva moschata, *L.* Musk Mallow. Locally a casual; though accepted as native in southern Britain. Formerly often cultivated in cottage gardens locally, explaining its greater frequency as an outcast or escape.

"Roadside near Richmond Hill; near Belmont, etc." (Dickie, 1838). "Formerly at Footdee" (Prof. Macgillivray, in Nat. Hist. of Deeside).

I have not seen it apparently wild in Aberdeen or adjacent parishes.

Adt. Ps. : : : : Nh : : .

M. sylvestris, L. Common Mallow. Casual or subdenizen near Aberdeen. Native of Europe; well-established denizen, if not native of many parts of the British islands. Often cultivated in cottage gardens.

"Stocket not common" (Beattie and Knight). "On the Inches; by the Boil-yards at Footdee; at King's College, rare" (Cow). "Carden's Haugh, rare" (Fl. Ab.).

I have seen it as an evident escape near cottages, not far from the Old Bridge of Don.

Adt. Ps. Ng : M P Nh D O. Usually near cottages or railways, well established in a few places.

M. rotundifolia, L. Dwarf Mallow. Casual. Probably native in Central Asia, and only a denizen of waste ground in Europe.

"Passim ad vias" (Skene, under "*sylvestris*," but with a description that shows his plant to have been *M. rotundifolia*). "Hangman's Yard, Aberdeen" (Beattie). "At the Sugar House, 1801" (Knight). "A single plant at Footdee in 1826" (Cow). "At the Suspension Bridge" (Nat. Hist. of Deeside). "Among sand at south end of Fish-town of Footdee, rare" (B. G., as a native plant).

I have found it occasionally on town-refuse, as on the old bed of the Dee, in a sand-pit at the Gallowhill, etc., but only as a casual.

Adt. Ps. : : : : Nh : : .

M. parviflora, L. Small-flowered Mallow. Casual. Native in the Mediterranean region, and a weed of cultivation there and in Central Europe.

Occasionally on town-refuse, e.g., on the old bed of the Dee, in 1893, on Old Aberdeen Links, etc.

Adt. Ps. : : : : (D) : . Rare.

M. borealis, Hartm. Northern Mallow. Casual. Native of Northern and Central Europe, where it is a frequent weed of cultivation.

Like *M. parviflora* in its occurrences; both probably being

brought among cereals from Continental Europe, and cast out in seed-siftings.

TILIACEÆ.

Tilia spp., Lime-trees, are frequent in and around Aberdeen ; but although they flower freely, they do not ripen seeds, and must all have been planted where they grow.

LINACEÆ.

Radiola linoides, Roth. Thyme-leaved Flax-seed. Native ; now extinct.

"In campis nostris maritimis" (Skene). "Links" (Harvey).

It has not been found on the Links or elsewhere in Aberdeen for many years ; and appears to be extinct as a local plant, though its small size may lead to its being overlooked.

Adt. Ps. (Ng) (B) : : : O. Very local. It exists, in small quantity, on an old road across Scotston Moor.

Linum catharticum, L. Purging Flax. Native, in short natural pasture, as on moors, but approaching extinction within Aberdeen.

"Ad ripas fluminum, et in pratis" (Skene). "Old Town Links" (Beattie). "Stocket Moor" (Knight). "Deeside, below the Bridge" (Cow).

It must have been not uncommon formerly within the parish ; but I have seen only a few examples in short turf near Rubislaw and on the inner sandhills near the Don.

Adt. Ps. Ng B M P Nh : O. General, and common in suitable habitats.

L. usitatissimum, L. Common or Cultivated Flax. Very widely cultivated from subtropical to cool temperate zones ; perhaps native in N. Africa. Formerly a good deal cultivated in the North-east of Scotland, but now rarely so.

It is still a very frequent casual on town-refuse, as on the old bed of the Dee, on the Links, and in many places around Aberdeen. It is a frequent weed among tares, and less often among other annual crops of cultivated ground.

Adt. Ps. Ng : : (P) Nh : : . A rare casual.

L. perenne, L. On refuse-tip in Ferryhill, 20 October, 1915, two plants, one with fl. buds and fruits, and one with ripe fruits.

GERANIACEÆ.

Geranium striatum, L. A rare casual; native in Southern Europe.

Two plants were found by me in Rubislaw Den, in 1877.

[*G. sanguineum*, L. Bloody Crane's-bill.] Native; but does not occur in Aberdeen.

Adt. Ps. Ng B : : : (O). Locally plentiful on the rocky coast of Kincardine south of Altens in Nigg. "Don Braes" (Knight).

G. sylvaticum, L. Wood Crane's-bill. Native on rough banks, local.

"In montosis, Banks of Don" (Skene). "Rubislaw" (Knight and Harvey). "Banks of Don near the Bridge" (Harvey).

It is still rather common on the rough banks of the Don a little above the Old Bridge, in Seaton.

Adt. Ps. Ng B M P : : O. By the Dee and the Don, locally common.

G. pratense, L. Meadow Crane's-bill. Casual or outcast in Aberdeen.

On rubbish in sandpits, etc., "Spring Garden roadside" (Beattie).

Adt. Ps. (Ng) B (M) : : : O. Native by the Don, and on the rocky sea-coast, but rare and local, for some distance round Aberdeen.

G. phæum, L. Dusky Crane's-bill. Native in Central Europe; often cultivated in gardens formerly, and an occasional outcast or casual.

"Bank of Don above the Old Bridge" (J. Roy, in MSS.).

Adt. Ps. : : M : : : O. A very local denizen, probably where planted.

G. molle, L. Soft Crane's-bill. Native, or perhaps a denizen.

"Passim in pratis" (Skene).

This plant is frequent on waste ground, earthen walls, and rubbish heaps; and is still more frequent as a weed in cultivated ground. It does not often occur in situations away from man's direct influence; hence its distribution locally makes it doubtful whether it is a native plant.

Adt. Ps. In all, distributed as in Aberdeen.

G. pusillum, L. Small-flowered Crane's-bill.

"Passim ad vias" (Skene). "Below y^e Hangman's Links, Aberdeen" (Beattie). "Garvock's Wynd, 1804" (Knight). "On waste ground and on gravelly soils, not common" (Cow). "Links, Dr. Duncan" (P. M.). It is not included in the Botanist's Guide.

I have often looked for this species in the district around Aberdeen, but without success; and I am constrained to believe that the records of its occurrence rest on mistakes in identification. I found one in August, 1910, on a rubbish heap in a sandpit west of Tillydrone, and a second, in July, 1913, as a weed in my garden at 81 High Street, Old Aberdeen; but both were evidently casuals. In July, 1915, several plants were growing, in a cluster, on quarry debris north of Persley Bridge.

G. dissectum, L. Jagged-leaved Crane's-bill. Native or denizen.

"In pratis et pascuis" (Skene). Mentioned by Harvey as plentiful, by Cow, Dickie, and Macgillivray as "frequent" or "not uncommon." The latter term would be the more suitable at present.

Its distribution is like that of *G. molle*, and raises similar doubts. Adt. Ps. In all, occurring as in Aberdeen.

G. lucidum, L. Shining Crane's-bill. Subdenizen on old walls. Native in the southern parts of Britain.

"Den of Rubislaw, abundant" (Knight, Harvey, Dickie, and Cow).

It grows plentifully on the walls of the garden, in the Den, spreading freely.

G. Robertianum, L. Herb-Robert. Native in thickets, and on stony ground.

"Den of Rubislaw, very abundant" (Harvey).

Still plentiful there and about the quarries, also by the Don in Seaton, etc. A very pale-flowered variety, coming true from seed, may also be found occasionally.

Adt. Ps. In all; local, but abundant in a good many places.

Erodium cicutarium, L'Herit. Hemlock Stork's-bill. Native.

"Passim in sterilioribus et arenosis" (Skene). "Inch; Links, etc." (Knight). "On the sandy Links at Footdee, at the foot of the Broadhill; on dry places on the Inches, etc." (Cow). "Frequent" (B. G. and P. M.).

It is still frequent on parts of the Links, especially north-east

of the Broadhill, where not excluded by recent alterations of the surface, as has been the result over part of its former area. It also grows sparingly in a few inland localities, e.g., near Woodhill, on dry banks, earth walls, etc.

Adt. Ps. Ng : M P : D O. Common near the Balgownie Links ; but elsewhere rather local and scarce.

E. moschatum, L'Herit. Musky Stork's-bill. A rare casual here ; though native along the west of Europe, including S.W. England, and a common weed of sandy fields and roads.

In 1893 I found several plants on the materials employed to fill the old bed of the Dee, possibly from seeds thrown out with corn-siftings.

Oxalis Acetosella, L. Wood Sorrel. Native in woods, and among stones.

"Passim in nemoribus" (Skene). "Rubislaw Den, 1800" (Knight hb.). "Hilton ; Donside above the Bridge" (Cow).

It is still common in a few localities within the parish ; but its distribution has been much restricted by alterations of its natural habitats.

Adt. Ps. In all ; locally common.

O. corniculata, L. Creeping Yellow Wood-sorrel. Casual, tending to become a colonist or subdenizen. Native probably of S. America.

"Solummodo vidi in horto Provost Shand" (Provost of Aberdeen in 1763) (Skene).

It is not uncommon as a weed in some gardens in Old Aberdeen, and in other parts of the city. It seems quite able to establish itself here on bare soil, cultivated or uncultivated.

Impatiens glandulifera, Royle (I. Roylei). Royle's Balsam. Native of the Himalayas, and frequently grown in gardens about Aberdeen.

Scattering its seeds widely from the bursting seed-vessels, it is apt to become a weed in gardens, and to extend beyond them, where not kept down. I have found it as a casual in Ferryhill, and on refuse on Old Aberdeen Links.

Tropæolum majus, L. and *T. minus*, L. Indian Cress or Nasturtium of gardeners, both natives of Peru, and favourite garden annuals, may occasionally be met with as casuals on town-refuse ; but they fail to keep their hold for even a second year.

AQUIFOLIACEÆ.

Ilex Aquifolium, L. Common Holly. Not native within Aberdeen, though perhaps so some distance inland.

Near the city the bushes are either planted, or have sprung from seeds of planted bushes, distributed by birds.

Adt. Ps. In all; but only as a subdenizen.

CELASTRACEÆ.

Euonymus europæus, L. Spindle-tree. Native of Europe; but only a relict of cultivation here, usually on the site of some garden, of which other indications have disappeared. Occasionally met with.

Adt. Ps. : : M : : (D) : . In the Corbie Den, bearing fruits; no doubt introduced.

RUTACEÆ.

Citrus Aurantium, L. Orange. In 1893 multitudes of seedling Orange plants sprung up on town-refuse on the old bed of the Dee, near the Railway Station; and in subsequent years they have been equally numerous on the Old Aberdeen Links and elsewhere, upon rubbish, no doubt from decayed fruit. The cold of winter here is fatal to the plants, if unprotected; but some brought from these outcasts have thriven very well in a hothouse.

SAPINDACEÆ.

Acer Pseudoplatanus, L. Great Maple, usually called Plane in Scotland, and Sycamore in England. A common denizen here, springing up very readily from seeds; native in Central Europe and Asia.

“Den of Rubislaw” (Cow).

Very common as a tree planted along streets and roads, and near houses; but also springing from seeds carried by the wind to apparently natural habitats, as along the Don, at Rubislaw, etc.

Adt. Ps. In all; distributed as in Aberdeen, and well established.

A. platanoides, L. Norway Maple. Native of Continental Europe, and much grown as an ornamental tree near Aberdeen; but not spreading by seeds, as *A. Pseudoplatanus* does.

Common in adjacent parishes.

A. campestre, L. Common Maple. An alien near Aberdeen, and rarely grown. Native in Southern Britain.

"Head of George Street" (Cow). It has long ceased to exist there.

Adt. Ps. : B M P Nh : : . Very scarce, and only where planted.

Æsculus Hippocastanum, L. Horse Chestnut. Native of Eastern Europe.

Very frequently planted as an ornamental tree in and around Aberdeen; but it rarely seems able to mature its seeds, and thus does not grow except where planted. It grows in all the adjacent parishes.

AMPELIDACEÆ.

Vitis vinifera, L. Grape Vine. Casual on town-refuse, etc.

In 1893 seedlings sprung up in great numbers on the materials used to fill the old bed of the Dee, near the Railway Station. A few survived the winter, and grew to over a foot in height; but none passed the second winter. In subsequent years seedlings have often appeared on rubbish heaps or deposits on the Links and elsewhere, the produce of decaying fruits, or of other refuse.

LEGUMINOSÆ.

Lupinus nootkatensis, Donn. Blue Lupine. Denizen in the valley of the Dee. Native along the northern part of the Pacific coast of North America.

It is not common within the limits of Aberdeen; but is very abundant in many places from Norwood up-river, covering the shingles, and causing alterations in the course of the Dee. I have been informed that when Balmoral was purchased for Queen Victoria, in 1847, this lupine was among the earlier plants brought to the garden of the castle, and that from there its seeds were carried down the Dee, lodging on shingle along its course, and gradually extending along its bed. The earliest example from Deeside known to me is one gathered in 1862 by the Dee at Aboyne; but in November, 1868, Professor Dickie informed Professor Balfour (Trans. Bot. Soc. Edinburgh, x., 20), that "*Lupinus perennis* . . . has been known for many years growing in the woods at Balmoral," doubtless an outcast from the old garden. It has spread downwards along the course of the Dee, and occurs in great abundance on a small island a little west from the bridge at

Ballater, and on another about a mile west from the old bridge of Dee at Aberdeen. Before 1870 it was rare below Banchory Ternan; and during several years I was able to watch its progress down river; and also to note the effects produced by it in crushing out the natural vegetation (including the alpine plants that previously found room to grow by the stream and on the beds of shingle), in altering the level of the shingle deposits, making it possible for large grasses and other coarse vegetation to grow on these deposits, and thus enabling them to dispossess the lupine in its turn of what it had taken possession of. It thus tends to form a fringe near the stream, occasionally for a time extending into wider belts over new surfaces of gravel.

Adt. Ps. Ng B M P : : . Confined to the margins of the Dee.

Genista anglica, *L.* Petty Whin. Native on moors.

"Stocket" (Beattie). "Stocket Moor, 1833" (Dickie hb.). There is no other record of its having been gathered within the parish.

Now extinct in Aberdeen, where it must formerly have been not uncommon.

Adt. Ps. Ng : M P Nh (D) O. Rather local, but often plentiful in the southern parishes, scarce in the northern.

Ulex europæus, *L.* Common Whin, Furze, or Gorse. Native. "Passim in sterilioribus" (Skene).

It is still abundant on waste or uncultivated ground, such as the Old Aberdeen Links, about the old quarries at Hilton and Rubislaw, and in similar places; but must have been much more plentiful in the parish formerly.

Adt. Ps. In all; abundant on rough uncultivated ground.

Cytisus scoparius, *Link.* Common Broom. Native.

"Passim in arvis" (Skene).

The same remarks apply to this as to the whin.

Adt. Ps. In all; Abundant on uncultivated ground.

Laburnum vulgare, *Presl.* Common Laburnum. Native of Central Europe.

L. alpinum, *Presl.* Scotch Laburnum. Native of sub-alpine Central Europe.

Both are very commonly grown in Aberdeen and the adjacent parishes, as ornamental trees, near houses and by roads. As both

produce seeds freely, and grow readily from the seeds, they may occasionally be met with in apparently the wild state; but they can scarcely be claimed as denizens.

Ononis repens, L. Common Restharrow. Native, but very local and rare.

"On the Links north of the Broadhill" (Cow). "Old-town Links near the Brick-work, Dr. A. Fleming" (B. G.).

For many years it has not been seen on the Links.

Adt. Ps. : : : : D O. A few plants grow on the Links north of the Don, and it is rather common by the near Glen in Dyce. The restharrow is very common in the south-east corner of Kincardineshire, near the Esk; but is rare near Aberdeen.

Trigonella cœrulea, Ser. Casual. Native and cultivated in Central Europe, from which seeds were probably brought among other seeds.

A few were found by me, in 1906 and 1907, on refuse on Old Aberdeen Links.

T. Fœnum-græcum, L. Fenugreek. Casual; native in Southern Europe.

A few with *T. cœrulea*, on Old Aberdeen Links, in 1906.

T. polycerata, L. Casual; native in the Mediterranean region.

Several were found by me on the old bed of the Dee, near the Railway Station, in 1893; probably sprung from seeds thrown out among grain-siftings.

Medicago sativa, L. Lucerne. Only a casual in Aberdeen, though occasionally grown as a fodder plant in the district, on a small scale. Native in N. Africa and W. Asia; and widely cultivated in Europe.

I first observed it in the parish in 1894, in which year several plants appeared on the rubbish used to fill the old bed of the Dee. Some of them survived for several years, until killed in the extension of railways over the ground. I have, since 1894, met with a few plants by roads and fields, and on town-refuse, as on Old Aberdeen Links. They usually grow for several years, if not destroyed; but they do not seem to ripen seeds, and thus cannot become true denizens.

Adt. Ps. Ng : : : Nh : : . Rare casual.

M. falcata, L. Yellow Medick. Scarcely more than a casual. Native in Europe, including England.

In 1893 a good many plants appeared on the old bed of the Dee, and thrive well, ripening seeds in most years; but the extension of railway lines over the ground has almost completely destroyed the species there; and I have not met with it elsewhere in Aberdeen.

Adt. Ps. : : : : D : . Once or twice near Dyce Station.

M. lupulina, L. Black Medick. Probably not native in or around Aberdeen; though accepted as native in some other parts of Scotland.

"In aratis" (Skene). "Abundant" (Knight). "Common" (Fl. Ab.).

It can scarcely be considered a common plant here, though it occurs in fields (often introduced among other pasture seeds), by roads, and (rarely) on waste or unoccupied ground; and it is rather frequent on town-refuse. Its distribution suggests that it had been brought to Scotland, at an early date, among agricultural plants.

Adt. Ps. Ng B : P Nh D O. Local; and almost confined to fields and waysides.

M. tuberculata, Willd. One large fine plant, in flower and fruit on town-refuse by East Merkland Road, 15 August, 1917.

M. hispida, Gaertn., var. *denticulata*, Willd. Reticulated Medick. Casual near Aberdeen; native in S. and Central Europe, as far as S. England.

"West end of the Inch. Rare, introduced in ballast" (B. G.).

In 1891 I found a specimen near old Aberdeen; and I have since seen it now and again on town-refuse, on the bed of the Dee and on the Links. Near Grandholm Mills in October, 1916, very scarce.

Var. *apiculata*, Willd. In 1913 a large plant of this variety grew on rubbish by the road to the Links from School Road. In 1909 I found a plant of it in a turnip field near Denmore in O.

M. ciliaris, Willd. A rare casual. Native in S. Europe.

Once found by me on a newly laid out road in Rubislaw, in 1908, and several on waste ground at Berryden in October, 1909. A few occurred on rubbish by the railway in Nigg in 1910.

M. littoralis, Rhode. A rare casual. Native in S. Europe. Once found by me in 1907, on town-refuse, on Old Aberdeen Links.

M. marginata, Willd. A rare casual; native of the Mediterranean region and of Central Europe.

A few on town-refuse on Old Aberdeen Links, in 1902.

M. arabica, Huds. (*M. maculata*, Sibth.). Spotted Medick. A not uncommon casual on town-refuse near Aberdeen; native in S. Britain, as well as in Central Europe; from which it had probably been brought to Aberdeen among agricultural seeds.

In 1893 first observed here, on the old bed of the Dee, and since then in a good many other places, including Old Aberdeen Links.

Adt. Ps. : : : : O. A very rare casual.

Melilotus officinalis, Lam. Common or Officinal Melilot. A casual locally, brought probably from Central Europe among agricultural seeds, though native in England.

"Once in a field near Hilton" (Harvey). "Occasionally on the Inch" (Fl. Ab.).

Every year it springs up, with increasing frequency by roads, near railway stations, and on town-refuse, as on the bed of the Dee, on Old Aberdeen Links, etc.; but it appears to ripen seed only in warm years, and fails to establish itself as a denizen.

Adt. Ps. Ng : : : Nh D O. A rare casual.

M. alba, Desv. White Melilot. A casual only; native in Central Europe.

Since 1893 I have found it almost every year about Aberdeen, under the same conditions as, though rather less frequent than, *M. officinalis*, like which it fails to ripen seed.

Adt. Ps. : : : : D : . Only near Dyce Station.

M. elegans, Salzm. A rare casual. Native in S. Europe. Once on a rubbish heap near Old Aberdeen, in 1905.

M. indica, All. Small-flowered Melilot. Casual on town-refuse, probably introduced with agricultural seeds, perhaps from the Mediterranean region, where it is native.

First found by me locally in 1893, on the old bed of the Dee,

and with increasing frequency in following years, on Old Aberdeen Links, in various sand-pits, on new streets, etc.

Adt. Ps. Ng : : P Nh D : . On rubbish and in turnip fields ; a rare casual.

M. sulcata, Desf. Casual. A native of the Mediterranean region.

Not very scarce on town-refuse from 1905 onwards, on Old Aberdeen Links, and once at Berryden.

M. messanensis, All. Casual. Native of the Mediterranean region.

A few were found by me on town-refuse on Old Aberdeen Links, in 1905.

Trifolium pratense, L. Common Purple-clover. Native, as var. *silvestre*, in dry natural pastures ; and introduced from Europe, as var. *sativum*, Schreb., in artificial pastures, by roads, and on rubbish heaps.

Adt. Ps. In all, in both varieties ; abundant.

T. medium, L. Zig-zag Clover. Native, and now rare in Aberdeen.

"Den of Rubislaw" (Cow). "Bank of Dee at Aberdeen" (B. G.). "Meadowbank, 1850" (P. M. hb.).

I have seen it within the parish only on the bank of the Dee near Allenvale, and by a cart-track near Hilton, in 1902 ; but rare in both places. It was probably less uncommon formerly, in natural pastures.

Adt. Ps. In all, but local, and not abundant anywhere.

T. ochroleucum, Huds. Sulphur-coloured Clover. A rare casual. Native in Southern Europe, and in the East of England. Probably imported with agricultural seeds.

I have only twice found it here, in a garden in Old Aberdeen in 1896, as a weed, and on town-refuse on Old Aberdeen Links, in 1905.

T. arvense, L. Hare's-foot Trefoil or Clover. Seems only a casual in Aberdeen, though native and common in S. E. Kincardineshire.

"Rare about Aberdeen" (Cow).

I have observed it occasionally from 1893 onwards, by fields

near Old Aberdeen and elsewhere, and on town-refuse on the Links, etc., but never common.

Adt. Ps. : : : P : (D) (O). A rare casual.

T. albidum, Retz., var. *ramosum*, Stapf. A rare casual, observed in Britain only in recent years, but in several localities. The native home of this form is uncertain.

In August, 1909, I found two small examples on the football ground, Old Aberdeen Links, near E. Seaton, on town-refuse.

T. lappaceum, L. A rare casual. Native in S. Europe.

Two examples found, with the last species, in August, 1909, on town-refuse by me.

T. hybridum, L. Alsike Clover. Native of Central and S. Europe; largely cultivated in pastures in Scotland, so as to be now well established as a denizen, as well as often occurring as a casual by roads, on rubbish heaps, etc.

Adt. Ps. In all; plentiful.

T. repens, L. White or Dutch Clover. Native in natural pastures, and also sown in artificial pastures.

"Passim in pascuis" (Skene).

Plentiful on both cultivated and uncultivated ground.

Adt. Ps. In all; abundant.

T. Thalii, Vill. Very rare casual. Native in Central Europe, on alpine meadows.

Once found by me, in September, 1907, on rubbish on Old Aberdeen Links.

T. resupinatum, L. Casual. Native in pastures in the East, and a weed of corn-fields in the Mediterranean region, from which the seeds may be imported to Aberdeen.

In 1905 I found two or three plants on town-refuse on Old Aberdeen Links, where they occurred in larger numbers in 1907, 1908, and 1909. One also was picked up in 1908 on a new roadway near the Rubislaw Bleachworks.

T. agrarium, L. Erect Yellow Trefoil or Clover. A rare casual in Aberdeen. Native in the Mediterranean region.

I first observed it in Aberdeen in 1896, in a field near Old Aberdeen; and since then have found it several times in grass fields, by roads, and on town-refuse. It is not uncommon in various parts of the counties near Aberdeen, in pastures to which it had been

brought with other agricultural seeds. In these I have observed its gradually increasing frequency during the past thirty years. It seems not unlikely to establish itself as a denizen in Scotland.

Adt. Ps. Ng B : : : O. Occasionally in fields.

T. procumbens, L. Hop Trefoil or Clover. Native in dry pastures and on waste ground; and occasionally included with other clovers in poor artificial pastures.

"Ad vias, 1767. Passim in pascuis" (Skene, as *T. agrarium*). "Bank near the Bridge of Dee; on the Inches; in the Den of Rubislaw" (Cow).

Somewhat local, but plentiful in a few places, e.g. on the inner sandhills near the Don, and by the railway and roads west of Ruthrieston Station.

Adt. Ps. In all; locally common.

T. dubium, Sibth. Lesser Yellow Trefoil or Clover. Native in poor and dry pastures, by roads, on waste ground, etc.

"Passim in locis sterilioribus" (Skene, as *T. procumbens*). "On pastures, common; in a field west the Broadhill; in the Den of Rubislaw; on the Canal banks at the head of George Street" (Cow as *T. minus*).

A very dwarf and slender form is common on some parts of the Links and on earthen walls.

Adt. Ps. In all; common, and often abundant.

[**T. filiforme, L.** Slender Yellow Trefoil or Clover.]

"On dry sandy soils and pastures; on the Broadhill and Links" (Cow). "Common" (Fl. Ab.). "Fields, pastures and by roadsides, abundant" (P. M.)

The true *T. filiforme* does not grow near Aberdeen, these records referring to the dwarf form of *T. dubium*.

Anthyllis Vulneraria, L. Common Kidney-vetch. Native in dry pasture.

"August 1, 1763, in bents near the mouth of the Don" (Skene). "On the Links, abundant" (Cow). "Along the Coast; banks of the Dee and Don, etc., plentiful" (Fl. Ab.).

It is still frequent on the Links; but rather local and scarce elsewhere in the parish.

Adt. Ps. In all; locally common, on dry pastures and banks; occasionally sown in artificial pastures as a fodder-plant.

Lotus corniculatus, L. Common Bird's-foot-trefoil or Crow's-foot. Native, in dry natural pastures.

Noted as plentiful in all the records, this is still abundant on the Links, and common in many places by railways, and on waste ground by roads, etc., in Aberdeen; but it must have been considerably more generally distributed formerly. On the coast the plants tend to be more fleshy, approaching the variety *crassifolius*, Pers.

Adt. Ps. In all; common.

L. tenuis, Waldst. et Kit. Narrow-leaved Bird's-foot-trefoil. Rare, and probably a casual only; though native in many parts of Britain.

Found by me in a field near Tillydrone, Old Aberdeen, in 1883, and on town-refuse on Old Aberdeen Links in 1905. In August, 1915, I found one plant in a field on Craibstone in Newhills.

L. uliginosus, Schkuhr (*L. major*, Scop.). Large Bird's-foot-trefoil. Native in damp soils.

"Pitmuckston" (Knight). "Common, as at moss of Ferryhill, etc." (Harvey). "On the side of a field south the Den of Rubislaw; in a meadow west from Seaton; on Donside below the Printfield, etc." (Cow). "Not common, Stocket Moor" (Fl. Ab.).

It seems to have disappeared from most of these localities, and is certainly much less frequent within the parish than it had been formerly; but it may still be found here and there in ditches and moist pastures, e.g. between Old Aberdeen and Woodside.

Adt. Ps. In all; local, but often abundant.

Astragalus danicus, Retz. (*A. Hypoglottis*, L.). Purple Milk-vetch. Native by the sea-coast.

"Solummodo uti novi on the S.E. corner of the Broadhill on the Links" (Skene). "On the Broadhill" (Cow). "It is still there in small quantity" (B. G.).

Very local in Aberdeen, and now may be extinct. I have looked for it on the Broadhill many times since 1869, but without success, and believe that it no longer grows there. In 1902 a flowering stem was shown me by Mr. George Rattray (then a student in the University) which he had found on a dune near the sea, about one-fourth mile north of the Broadhill. As the new road has since been made almost over the spot where it grew, there is reason to believe

that it may no longer grow on the Links, and therefore in the parish.

Adt. Ps. Ng B : : : : . Confined to the coast ; but frequent there.

Scorpiurus subvillosus, L. A rare casual. Native in the Mediterranean region.

Several examples were found by me, in 1893, on town-refuse in the old bed of the Dee, perhaps from grain-siftings.

Ornithopus perpusillus, L. Common Bird's-foot. Perhaps not native in or near Aberdeen, though common in Scotland from Forfarshire to the south.

It is rare in N.E. Scotland, and very local, growing on dry banks, which are all of artificial origin, where observed here. It was first noticed in Aberdeen in 1888, on a slope, at the end next the Dee, of the road between the Allenvale Cemetery and the Duthie Park. A year or two later it was found to be plentiful in the short turf of the Cemetery, where it has continued to grow. Its sudden appearance, and very local occurrence, suggest its recent introduction in some way, perhaps among seed for turf ; but its small size and insignificant appearance would account for its having been overlooked, if locally indigenous, until the new conditions due to alterations in laying out the ground, favoured its rapid increase.

Adt. Ps. : : : P : : : . Found by me, in 1903, in plenty on a rough artificial bank near Culter Station. It still grows there, though less plentifully.

[*Coronilla varia*, L.] A rare casual. Native in S. Europe ; cultivated in gardens as a perennial herb.

Adt. Ps. One plant found by Mr. J. Cobban at Dyce Railway Station, seen by me dried.

[*C. scorpioides*, Koch.] A rare casual. Native in the Mediterranean region as an annual weed.

Adt. Ps. An example found by Mr. Cobban, as a weed in his garden, at Dyce, was given by him to me in 1909.

Vicia hirsuta, Gray. Hairy Tare. Probably native, though not common and chiefly occurring as a weed among crops, locally.

"In arvis" (Skene). "Field at the back of Arthur Seat" (Beattie). "In a field at the Firhill-well ; in cornfields at Kemhill, not common" (Cow). "At Robslaw Quarry" (B. G.).

On rubbish on the Links and in Rubislaw.

Adt. Ps. Ng B : P : : . Very local. Plentiful on a rough bank near the railway, west of Murtle Station. It is very common near Nether Warburton in St. Cyrus.

V. tetrasperma, Moench (*V. gemella*, Crantz). Slender or Smooth Tare. A scarce casual here; though regarded as native farther south.

I found several examples, in 1893, on the old bed of the Dee, near the Railway Station, and one in 1904, on the newly made Anderson Drive south of Rubislaw, and one was found in September, 1909, on waste ground at Morningfield Road, by Mr. Johnstone.

Adt. Ps. : : : : Nh : : . On waste ground near Buxburn, in 1904.

V. gracilis, Lois. A rare casual here, though native in S. Britain and Continental Europe.

Once found by me in July, 1909, on the Football Ground, Old Aberdeen Links, near E. Seaton, on town-refuse; and I have also seen one found in September, 1909, in Rubislaw by Mr. G. Johnstone.

V. Cracca, L. Tufted Vetch. Native, in coarse pastures and on waste ground.

"Passim in pascuis, in pratis, inter gramina et inter segetes" (Skene).

Too frequent in hedges, on river banks, in coarse natural pastures, e.g. on parts of the Links, etc. to require localities.

Adt. Ps. In all; plentiful, though somewhat local.

V. sepium, L. Bush Vetch. Native; frequent in similar places to those preferred by *V. Cracca*.

"In arvis et cultis" (Skene). Too general to require details.

Adt. Ps. In all; common.

V. sativa, L. Cultivated Tare or Vetch. Very frequent in cultivation and as a casual in fields, on roadsides, and on town-refuse.

"In cultis inter *Pisam sativam* et *Fabas*" (Skene).

Adt. Ps. In all; under similar conditions to those in Aberdeen.

V. angustifolia, L. Narrow-leaved Vetch. Native.

"Inter segetes, et in pascuo arenoso, 1770" (Skene). "On dry pastures, on sandy or gravelly soil, not uncommon; in wood at Raeden; Rubislaw; and top of brae at Kemhill, etc." (Cow).

Not common now within the parish ; but a few may be found on the sandhills north of the Broadhill, and on dry banks along railways, also near Tillydrone, etc.

Adt. Ps. In all. Local ; but in some places common, especially in rather poor thin and dry pastures.

V. lathyroides, L. Spring Vetch. Native on dry soils, chiefly sandy.

“Solummodo inveni in campis nostris maritimis” (Skene).
 “Queen’s Links abundant” (Knight). “On the Links” (Harvey).
 “Formerly on the Inch” (B. G.).

It is still frequent on the bare parts or in the short turf of the sandhills between the Broadhill and the Don ; but it is very rare elsewhere in the parish, though occasionally occurring on earthen walls or dry banks.

Adt. Ps. Ng : : P : : O. Common on sandhills, rare elsewhere.

The following species of *Vicia* were found by me as casuals, growing on town-refuse on Old Aberdeen Links, in 1906. All appear among tares grown from seed brought from Germany, largely, I am told, from Königsberg in E. Prussia, and used here as “foreign tares” such as I have seen grown in Midmar and other parts of Aberdeenshire. All are natives of S. and Central Europe ; and their occurrence on the Links was probably due to their being outcasts from a seed-store.

V. bithynica, L. Rough-podded Purple Vetch,

V. monanthos, Desf. One-flowered Vetch, and

V. villosa, Roth. Hairy-fruited Vetch ; and *var. glabrescens*, Koch, at Ferryhill, in 1910. •

V. lutea, L. Rough-podded Yellow Vetch. This species is also native in a few places in Scotland, e.g. on rough braes in St. Cyrus, but it is very scarce as a native plant. At Ferryhill in 1915.

V. Faba, L. Broad Bean. Long cultivated both as a garden and as a field crop ; hence a not uncommon casual in fields, by roads, and on refuse.

Lens esculenta, L. Lentil. Cultivated in the Mediterranean region and in Asia, and imported as a food grain.

A rare casual here, e.g. in 1906, on refuse on Old Aberdeen Links.

***Lathyrus pratensis*, L.** Meadow Vetchling. Native.

Very frequent in natural pasture, on rough ground, etc. Though not mentioned by Skene from the local flora, it must have been abundant formerly as much as now, or more so, its habitats having been limited by the city.

Adt. Ps. In all; plentiful.

***L. montanus*, Bernh.** Tuberous Bitter-vetch. Native in poor natural pastures, and on dry grassy moors.

"Passim in pratis et pascuis" (Skene). "Den of Rubislaw" (Cow).

It must have formerly been common in Aberdeen; but now scarce it usually occurs as a relict of moors or pastures, hence on waste ground by railways, or by roads, e.g. at Hilton, Rubislaw and Ruthrieston.

Adt. Ps. In all; common in suitable localities.

The following six species of *Lathyrus* have been found by me as casuals in Aberdeen, four of them possibly introduced with agricultural seeds or produce, the two last as old and well-known garden favourites, occasionally escaping from cultivation or as outcasts :—

***L. Aphaca*, L.** Yellow Vetch. Native in S. and Central Europe, and probably in England; a denizen in some places in Scotland.

It is not very rare about Aberdeen on refuse, e.g. on the old bed of the Dee, on Old Aberdeen Links and in Ferryhill; and it may, though seldom, be found as a weed in fields, as near Old Aberdeen. My earliest local record was in 1893. It was very common among "foreign tares" in Midmar in 1906.

***L. Ochrus*, L.** Native in S. Europe.

Once found by me, in 1893, on the old bed of the Dee, and once as a weed in my garden, in Old Aberdeen, also in 1893.

***L. inconspicuus*, L.** Native in S. Europe.

From 1893 onward I have met with this, as a not very rare casual, on refuse, on the old bed of the Dee, on Old Aberdeen Links, etc. It is one of the species included usually among "foreign tares."

***L. hirsutus*, L.** Native in S. and Central Europe.

A few plants grew, in 1893 and 1894, on the old bed of the Dee, near the Railway Station.

L. odoratus, L. Sweet Pea. Native in S. Italy and Sicily. Occasionally on rubbish near Aberdeen, e.g. on Old Aberdeen Links.

L. latifolius, L. Everlasting Pea. Native in S.E. Europe. "Among bushes in the Den of Rubislaw" (Cow).

Probably it had been planted where found by Cow. I have occasionally seen it in hedges beside cottage gardens, or as a weed in gardens; and have once or twice seen it on refuse on Old Aberdeen Links and elsewhere, perhaps outcast.

Pisum arvense, L. Field Pea and

P. sativum, L. Garden Pea.

Both have so long been in cultivation in Scotland that they readily become dispersed as casuals in fields, on town-refuse, etc.; but they do not keep their place for more than a very brief time.

ROSACEÆ.

[*Prunus spinosa*, L. Sloe or Blackthorn.] Native in the district around Aberdeen, though there is no record of its having been found within the parish. There is, however, good reason to believe that it had grown in thickets beside the streams here formerly, as it still does in neighbouring parishes, e.g. on the rough bank of the Don just across the Old Bridge.

Adt. Ps. Ng B : P Nh D O. Local. More common up the valley of the Dee and along the rocky coast of Kincardineshire. "Don Braes" (Knight).

P. domestica, L. Plum. Recorded in error, or alien, sown by birds.

"Den of Rubislaw" (Cow). Probably an erroneous identification.

P. Cerasus, L. Cherry. Long cultivated here, and occasionally sprung from seeds sown by birds carrying away and dropping the fruits.

"At Woodside; in the Den of Rubislaw" (Cow).

I have seen this in the Den, and also in the grounds at Seaton, apparently bird-sown.

Adt. Ps. : : (M) : : : . "Kingleaie" (Knight).

P. Avium, L. Gean. Probably not native, though well-established in the valley of the Dee. Rare in Aberdeen.

Adt. Ps. : B M P Nh D O. Rarely Common.

P. Padus, L. Bird Cherry. Native.

"Hilton" (Knight). "Rubislaw, 1837" (Laing hb.).

I have not seen any other example from Aberdeen.

Adt. Ps. : B M P Nh : (O). Common in the valley of the Dee ; rare elsewhere. "Fraserfield" (Beattie). This was a former name for the property of Balgownie.

Spiraea salicifolia, L. Native of the N. Temperate Zone ; often planted in this district, as an ornamental shrub, so as to have become a subdenizen in several places.

"In the Den of Rubislaw and a ditch north of it ; at Powis Hermitage" (Cow).

Adt. Ps. : : : P Nh : : . Very local.

S. Ulmaria, L. Meadow-sweet or Queen-of-the-Meadow. Native.

"Pitmuckston, Rubislaw" (Knight). "In the Den of Rubislaw ; on Deeside and Don, abundant ; on the banks of streams at the Printfield, etc." (Cow).

It is still common about Aberdeen in wet places, though drainage must have greatly limited its range.

Adt. Ps. In all ; common, and often abundant in wet places.

Var. **denudata, Boenn.** I have found this variety here and there, e.g. by the Don near Woodside. The leaves vary so much in the degree of hairiness on the lower surface, even on the same plant that the variety seems scarcely worthy of a name.

S. Filipendula, L. Common Dropwort. Only as a casual, or escape.

"In the Den of Rubislaw" (Cow).

Adt. Ps. : : : P : : : . Rare ; once found by me near Cults ; outcast.

Rubus idaeus, L. Wild Raspberry. Native in woods and on rough ground.

"Rubislaw" (Beattie). "Donside ; Stocket" (Knight). "Common on Donside, above the Bridge ; at Woodside, by the river" (Cow).

It is still common on the banks of the Don ; about old quarries at Rubislaw and Hilton ; and on waste and rough ground in other parts of Aberdeen ; though its habitats have been greatly limited by agriculture and by the extension of the city. A pale-fruited variety may be met with here and there, as near Hilton. This variety

appears to occur spontaneously among wild raspberries in the counties near Aberdeen.

Adt. Ps. In all; plentiful. Great differences exist in the abundance of prickles on the stems and leaves, some plants being covered with them, while others are almost unarmed. I have occasionally found var. *obtusifolius* (Willd.) in this district, though not within the "adjacent parishes" until October, 1909, when I found a clump of it on the slope about 200 or 300 yards east of the Church of Nigg. In Midmar, from fifteen to twenty miles west of Aberdeen, there is a tendency for the raspberry leaves to show digitate divisions, much like some forms of bramble leaves.

[*R. suberectus*, *Anders.*] Among the group of Suberect Brambles none has been observed within the limits of Aberdeen, though there is reason to believe that they were among the native flora of the parish; but I have examples of the following, gathered by myself, from the vicinity:—

R. fissus, *Lindl.* Near Grandholm in Old Machar,

R. plicatus, *W. et N.* Near Culter, and

R. Rogersii, *Linton.* In parish of Dyce.

R. fruticosus, *L.*, agg. Bramble or Blackberry. Native in thickets and on rough banks about Aberdeen; limited by agriculture and buildings.

Of the numerous forms included under this aggregate, I have gathered examples of the following within Aberdeen, the names being given, as for the suberect brambles, by the Rev. W. Moyle Rogers, who very kindly examined my local collection:—

R. latifolius, *Bab.* In Seaton, rare.

Adt. Ps. : : : : O. Local and rare.

R. rusticanus, *Merc.* By a road near Hilton, scarce. In September, 1914, I found a plant by the Dee below Murtle.

R. mucronatus, *Blox.* By the Don near Seaton, about Woodside, Hilton, and Rubislaw; probably the most common bramble near Aberdeen.

Adt. Ps. In all; common.

R. radula, *Weihe.* Once by a road near Hilton.

Adt. Ps. : : : P : : : . Rare.

Var. *echinatoides*, *Rogers.* Rather frequent by roads near Hilton and Kittybrewster.

Adt. Ps. Ng : : P Nh : : . Local.

R. corylifolius, *Sm.* Hazel-leaved Bramble. Native in same habitats as *R. fruticosus* forms; local and scarcely common.

"Den of Rubislaw" (Knight and Fl. Ab.).

I have seen it at Rubislaw and Hilton, by roads and on quarry refuse.

Adt. Ps. In all; rather local.

[**R. saxatilis**, *L.* Stone Bramble.] Native in N.E. Scotland, on rough banks, etc., but not recorded from Aberdeen.

Adt. Ps. : : M : Nh : : . "Maidencraig" (Knight). Wood near "Robber's Cave," Clinterty, 22 September, 1917.

Geum urbanum, *L.* Common Avens. Native by sides of woods, thickets, and hedges; locally plentiful.

"Ad aggeres" (Skene). "Near Hilton" (Beattie and Harvey). "Raeden and Stocket" (Knight). "At Woodside, by the river; in the Den of Rubislaw" (Cow). "Roadside at Richmond Hill" (Fl. Ab.).

Still grows, though in greatly reduced amount, in Aberdeen; but local.

Adt. Ps. Ng B M P Nh : O. Local; but plentiful in many places.

G. rivale, *L.* Water Avens. Native, by streams usually.

"Rubislaw and Donside" (Beattie). "Banks of Dee" (Fl. Ab.).

Rare within Aberdeen, even by the Dee and the Don, to whose banks it is almost limited.

Adt. Ps. Ng B M P (Nh) : O. Rather scarce.

[**G. rivale x urbanum** (*G. intermedium*, Ehrh.)] has not been observed within Aberdeen; but it is scarcely rare, though very local, in the valley of the Dee.

Adt. Ps. : : M P : : .

G. macrophyllum, *Wild.* Denizen, abundant in one place in Aberdeen. Native in N. America.

Very plentiful during at least thirty years by a large ditch, beside a road near Woodhill; probably outcast originally from a garden near at hand. A few years ago I saw a plant by a road near Cairnery quarry, about quarter of a mile from the bed of it. I do not know of its occurrence in the "adjacent parishes"; but have seen it well established in widely separated parts of the county.

Fragaria vesca, *L.* Wild Strawberry. Native; in woods and on braes.

“Den of Rubislaw” (Knight). “Woodside, by the river” (Cow). “Den of Rubislaw and Rubislaw Quarry” (Fl. Ab.).

It is now very rare in the Den; and I do not know of any other station for it in Aberdeen as Cow’s record for Woodside is probably in error for the “Barren Strawberry,” which he does not mention in his list, though it is not uncommon by the Don in some places.

Adt. Ps. : B M P Nh : O. Local and rarely frequent.

“*F. elatior*.” Cultivated Strawberries. Outcasts or escapes from cultivation, or sprung from seeds scattered by birds; often on waste ground, or as relicts of deserted gardens.

“In the Den at Rubislaw” (Cow).

Cultivated Strawberry plants are frequent near Aberdeen; but they are of very mixed origin; and probably the true *F. elatior*, Ehrh., is of rare occurrence among them.

Adt. Ps. Occasionally in most parishes; almost a denizen in places.

Potentilla recta, L. Casual. Native in Central and S. Europe.

Found by me on the old bed of the Dee, in 1893, and since then on Old Aberdeen Links; but rare.

P. intermedia, L. A rare casual. Native in N. Russia and probably in Sweden.

A strong plant, bearing numerous branches with many flowers, thrrove well in 1909 and 1910 by a road on Old Aberdeen Links, a short distance north from E. Merkland Road. Near it were growing other casuals, probably derived from a top-dressing of town-refuse.

Adt. Ps. A plant has grown at Persley since 1909 on bare rubbish from a quarry.

P. norvegica, L. Casual. Native in the N. Temperate Zone and Arctic regions.

Several times found by me on waste ground and town-refuse, as on the old bed of the Dee, in 1894, on Old Aberdeen Links, and other localities in Aberdeen.

P. sterilis, Garcke (*P. Fragariastrum*, Ehrh.). Barren Strawberry. Native, usually on rough banks of streams.

“Bridge of Don” (Beattie). “Arthur’s Seat” (Knight). “South bank of the Dee at Craiglug” (B. G.).

I have seen it in the parish only near the Don, where it is not common in Seaton and above Woodside. Probably it has been cleared out of some former habitats within the parish.

Adt. Ps. Ng B M P : : O . Local; but rather common in places.

P. Tormentilla, *Sibth.* Tormentil. Native.

“Passim in pascuis” (Skene). “On barren and heathy places, common: on the quarries of Rubislaw, and in the Den; on the north end of the Broadhill” (Cow).

Common on waste and poor soil, and in woods; but must have been much more so formerly.

Of the forms included in the aggregate only one appears to exist in Aberdeen now; but the other very probably was also native on the moors that covered so much of the surface:—

P. erecta, *Hampe* (*P. silvestris*, Neck). Erect Tormentil.

Still rather common in Aberdeen on quarry-refuse, in natural pasture by roads, on the Links, in the remnants of woods near Rubislaw and by the Don; but much less abundant than it must once have been.

Adt. Ps. In all; abundant.

[**P. procumbens**, *Sibth.* Procumbent Tormentil.] Native on moors.

Less frequent than the other Tormentil. Though there is no existing proof of its having been native in Aberdeen, its occurrence in all the “adjacent parishes” warrants the belief that it extended to the moors that have disappeared in relatively recent times.

P. reptans, L. Creeping Cinquefoil. Very rare, and probably alien locally, though very common in the South of Scotland.

“Den of Rubislaw, rare” (Cow; Fl. Ab.). “By an old road at Cuparstone Toll-bar, 1865” (Roy hb.).

I have seen this in Rubislaw Den, between 1870 and 1880, but not recently, and also as a weed, escape from former cultivation, in gardens in Old Aberdeen; but the situations in which it grows in Aberdeen suggest that it is not native here, and is, indeed, scarcely more than a casual.

Adt. Ps. : : M P : : . I have seen a specimen gathered by Dr. R. Beveridge in the Corbie Den, in 1844.

P. Anserina, L. Silver-weed. Native on sandy and waste ground.

“*Passim ad vias*” (Skene). “*Links, dwarfy*” (Harvey). “*Road-sides and waste places at Torry, abundant*” (Cow).

Still abundant in these and other places round the city, though rather local. It varies greatly in the hairiness of the leaves, which seems to depend in some measure on the environment.

Adt. Ps. In all; locally common, and in some places abundant.

P. argentea, L. Hoary Cinquefoil. Very rare casual; though native in some other parts of Scotland.

A specimen was gathered by Mr. Thomas Edward, in 1883, on ground reclaimed recently from the estuary of the Dee.

I found two or three plants on quarry debris at Persley in the end of June, 1915.

P. fruticosa, L. Shrubby Cinquefoil. Casual. Native in England.

A specimen from “near Aberdeen, 1837” is in the Laing hb.

P. palustris, Scop. (*Comarum palustre*, L.). Marsh Cinquefoil. Native.

“*Moss of Ferryhill, 1802*” (Knight hb.; 1827, Harvey hb.; 1849, P. M. hb.). “*Pitmuxton Marsh*” (Cow).

The Marsh Cinquefoil was no doubt abundant in the swamps that figure so largely in the old maps of Aberdeen; but there is no existing evidence of its presence in Aberdeen north of the Dee after 1849. A few plants of it grow on wet places by the Dee east of Torry, in Nigg.

Adt. Ps. In all; common, and often abundant, in almost all boggy soil.

Alchemilla arvensis, Scop. Field Lady’s-mantle or Parsley-piert. Native on dry bare ground, but in cultivated ground even more plentiful, as a weed.

“*Passim ad vias*” (Skene). “*In fields and gravelly soils, common*” (Cow).

Too common to require mention of localities.

Adt. Ps. In all; plentiful.

A. vulgaris, L. Common Lady’s-mantle. Native by streams and in pastures.

“*Passim in pratis*” (Skene). “*On the Old Town Links*” (Murray in N. Fl.). “*On the banks of the Don in many places; in Rubislaw Den*” (Cow).

Still frequent by the rivers, and also on roadsides and in

pastures. Var. *pratensis* (Schmidt) and var. *alpestris* (Schmidt) are our local types, the former being the more common in Aberdeen.

Adt. Ps. In all; the two varieties are about equally common.

A. alpina, L. Alpine Lady's-mantle. Native in the upper part of the valley of the Dee, and brought down by the river; but uncertain in its survival at low levels.

"At Aberdeen, both above and below the Bridge of Dee, and occasionally in small quantity upon the Inch" (Murray in N. Fl.).

The estuary has long ceased to afford suitable habitats for this; but an occasional plant may be found on the bank of the Dee, between the Old and the Railway Bridges across the Dee. They seldom retain their place for more than a year or two.

Adt. Ps. Ng B M P : : . Only beside the Dee.

Agrimonia Eupatoria, L. Common Agrimony. A rare native. "In rupibus Don prope pontem" (Skene).

Probably Skene refers rather to the north bank of the river; but I have found one or two plants on the rough south bank in Seaton also.

Adt. Ps. : B : : : O. North bank of the Don above the Old Bridge, and in Banchory, on the coast near Portlethen.

Aremonia agrimonoides, Neck. Subdenizen. Native in S. Europe and W. Asia.

Adt. Ps. : : : : O. Plentiful in a small plantation near the west gate of Balgownie Lodge, where it has been well-established for more than thirty years.

Rosa spinosissima, L. Scotch Rose or Burnet-leaved Rose. Native.

"South side of Don near the Bridge" (Harvey). "Den of Rubislaw" (Cow). "Old Town Links" (Fl. Ab.).

It is abundant on one part of the rough bank of the Don above the Old Bridge. I have also seen a few bushes on dunes about 200 yards south of Donmouth, but not for a good many years.

Adt. Ps. Ng B M (P) Nh : O. Chiefly on the coast, near Aberdeen; rather local.

R. mollis, L. Villous Rose. Native; in thickets, by roads, etc. Scarce.

"About Aberdeen" (B. G.).

I have seen only one or two bushes (near Hilton) within the parish.

Adt. Ps. Ng B M P Nh D O. Common in a good many places.

R. tomentosa, Sm. Downy-leaved Rose. Native; in rough ground, etc.

By the Don in Seaton, above the Old Bridge; and on waste ground near Hilton and Rubislaw; not frequent within Aberdeen.

Adt. Ps. In all; rather frequent, and in places common.

R. Eglanteria, L. (*R. rubiginosa*, L.). Sweet Briar. A denizen only.

“Den of Rubislaw” (Cow).

Occasionally in hedges, though scarce. On Old Aberdeen Links, once; now extinct.

Adt. Ps. : : M P : D O. Not frequent; apparently not native.

R. canina, L. Dog Rose. Native. In the wide sense not uncommon here.

“Den of Rubislaw” (Cow). “Rubislaw Quarry, Stocket, etc.” (B. G.).

Of the forms included in these records, I have gathered within Aberdeen the following (determined by Mr. William Barclay), none of them common here:—

R. canina, L. (segr.). Rare; about old quarries at Hilton.

R. glauca (Vill.) and var. *coriifolia* (Fr.).

Here and there on old quarries and other uncultivated ground at Hilton and elsewhere. Both are very general, and in places abundant, in adjacent parishes.

Var. *subcoriifolia*, Barclay.

A few bushes in an old quarry east of Hilton.

R. arvensis, Huds. Trailing Rose. Alien here, though native in S. Scotland.

“In sepibus et arvis” (Skene, probably in error). “On the banks of a stream at Kepplestone” (Cow).

I have not seen it in Aberdeen except in cultivation; though it occurs here and there in Aberdeenshire where it was not planted, but probably bird-sown.

Pyrus Aucuparia, L. Rowan or Mountain Ash. Native; in woods, etc., but often planted, and distributed by birds from fruits of planted trees.

"Rubislaw, 1823" (Knight hb.). "In woods and plantations, abundant; in the Den of Rubislaw; at Hilton" (Cow). "Banks of Don" (Fl. Ab.).

Adt. Ps. In all; general, in many places plentiful.

P. Aria, Ehrh. White Beam-tree; often erroneously called "Mulberry" in this part of Scotland. Very frequently planted; but so freely sown by birds that it has almost become a denizen in and near Aberdeen, and in the adjacent parishes.

P. Malus, L. Apple. Regarded as native in S. Scotland; often met with in and near Aberdeen on town-refuse, on waste ground, such as old quarry-heaps, etc.; but owing its presence to outcasts, escapes, or bird-sown seed from trees in cultivation.

I have not seen the *true* Crab or Wild Apple near Aberdeen.

Adt. Ps. : : : (P) : D : . A rare subdenizen.

Cratæga Oxyacantha, L. Hawthorn or Whitethorn.

Very frequent in Aberdeen, and in all the adjoining counties, in hedges and near houses; but also common on uncultivated ground, such as old quarries and rough banks of streams, where the bushes were certainly not planted. As it has long been in cultivation, and is very readily dispersed by birds, it is generally regarded as not native in the north of Scotland; but it is at least a very well-established denizen in this district.

SAXIFRAGACEÆ.

Saxifraga umbrosa, L. London-pride. Native in Ireland; long a favourite in gardens, and often outcast, or planted in shrubberies and in woods and by streams. It spreads freely, looking like a wild plant.

"Leslie's Hermitage," Powis (Beattie). "About the Den of Rubislaw" (Cow).

It is still common there, and under the trees on a bank beside the north avenue to the house of Seaton; and occasionally one finds it as a casual on town-refuse, or as a relict of gardens on ground given up to feus.

Adt. Ps. : B M P : : O. Very local; but plentiful here and there.

S. Geum, L. Kidney-leaved London-pride. Native in S.W. Ireland and S. Spain. Semi-naturalised in a plantation in Old Machar.

S. aizoides, L. Yellow Mountain Saxifrage. Native in the upper valley of the Dee. Plants brought down by the stream have been found growing by the Dee as far down as Culter, but are rare so low down.

Beattie notes "*Saxifraga autumnalis*" from "Den of Rubislaw, etc." His accuracy makes one hesitate to set aside this evidence, though *S. aizoides* was not likely to be found wild in the Den.

S. granulata, L. Meadow Saxifrage. Native near the coast.

"N.E. corner of the Broadhill" (Harvey). "Not common; on sandy hill south of Don mouth; on a dry bank, Donside, above the Printfield, abundant" (Cow).

I have been shown examples gathered near Woodside, by the Don, in 1887; but have not myself seen the wild plant growing within Aberdeen. A double-flowered variety is common at one place beside the north avenue in Seaton; but from a garden.

Adt. Ps. Ng B : : : (D) (O). The wild plant is common on the braes along the coast in Kincardineshire; and it also grows on the sand-dunes near the Black Dog Burn, just beyond the north limit of Old Machar. I have seen a specimen labelled "Murchar Links, May, 1849" (P. M. hb.).

S. hypnoides, L. Mossy Saxifrage. Casual or outcast from gardens in Aberdeen; but native on hills inland plentifully, and on coast near Cove, in small amount.

"Garden dyke, N. side, Old Town" (Beattie).

Adt. Ps. : : : : (D) : . Rare escape from cultivation.

Chrysosplenium oppositifolium, L. Opposite-leaved Golden-saxifrage. Native on wet soil and dripping rocks.

"Den of Rubislaw; on Donside above the Printfield, abundant" (Cow).

Common in a few places, e.g., by Walker's Dam; by the Don, etc.

Adt. Ps. In all; locally plentiful.

C. alternifolium, L. Alternate-leaved Golden-saxifrage. Native on wet banks of streams.

"Don braes a little above the bridge, abundantly" (Beattie).
 "Rare on a gravelly place, Donside above the bridge, south side of the river" (Cow).

Very local in Aberdeen; but still grows by the Don in Seaton, a little way above the Old Bridge.

Adt. Ps. : : M P Nh : O. Very local, though in fair quantity in a few places.

[*Parnassia palustris*, L. Grass-of-Parnassus.] Native in marshy soil.

Adt. Ps. : (B) (M) : : : O. Local, but common on Scotston Moor, by the Don above Grandholm, and occasional on Murcar Links. It was probably native in Aberdeen before drainage of the moors. On the coast of Buchan, and in many places inland, it is very common.

Ribes Grossularia, L. Gooseberry.

R. rubrum, L., var. *sativum*. Red Currant.

R. nigrum, L. Black Currant.

R. alpinum, L.

Cultivated commonly in gardens and very frequently dispersed by birds, these spring up on rough banks, in thickets, and by streams, where they have the appearance of being wild, and may be looked on as rather scarce denizens; and they also grow frequently as casuals on town-refuse, on the Links and elsewhere, probably from waste fruit.

R. Grossularia is the more frequent in Aberdeen; and grows as a denizen in all the adjoining parishes. It often suffers from attacks of insects.

R. rubrum is not frequent; but I have seen it in B M Nh and O. The var. *petræum* (Sm.) appears to be native, though rare, in the valley of the Dee, in Banchory Ternan and elsewhere.

R. nigrum is also scarce in the apparently wild state; but grows in B M P and O. In gardens in and near Aberdeen the disease known as "big-bud," due to the attacks of mites, has become disastrously frequent.

CRASSULACEÆ.

[*Cotyledon Umbilicus-Veneris*, L. Wall Pennywort.]

Plentiful among the stones of a wall by a road near the Church of Culter; but certainly not native, though well established there for many years.

Sedum Telephium, L., var. *purpureum*, L. (var. *Fabaria*, Koch) Orpine. Scarcely more than a casual in Aberdeen, though a frequent denizen in the N.E. of Scotland. Long cultivated here in gardens, and in repute as a remedy for injuries. Native in parts of Britain.

"On a waste place near the Stocket; in the Den of Rubislaw" (Cow). "Near Morningfield, in fields by King Street, etc." (Fl. Ab. as *S. Telephium*).

I have seen it once or twice by roads and fields in Rubislaw and Ruthrieston, and near Old Aberdeen, possibly outcasts from cultivation; but it died out after a time, or was destroyed by new streets.

Adt. Ps. Ng B M P Nh D O. A denizen; but local and not common.

S. villosum, L. Hairy Stone-crop. Native; rare and now extinct here.

"In humidis et paludosis" (Skene). "Den of Rubislaw, 1809" (Knight hb.). "Stocket Moor" (Fl. Ab.).

It has not been seen within Aberdeen for about fifty years.

Adt. Ps. Ng (extinct?): M : (Nh) : O. In bogs; very rare and local.

S. acre, L. Biting Stone-crop. Native on sandhills on the Links, on dry banks, and on old walls, locally plentiful.

"On the Links at Footdee; on the Links at Donmouth; on wall-tops at Kittybrewster's Toll; housetops at the Bridge of Don, etc." (Cow). "Dike near Hilton, 1845" (Polson hb.).

Though still plentiful on many parts of the dunes, and occasionally on quarry refuse and similar materials, *S. acre* has disappeared from several of the above localities, and seems to be less common than formerly in Aberdeen.

Adt. Ps. In all; native, and often abundant on the coast; probably a denizen only in most of its other habitats.

S. album, L. White Stone-crop. A rare alien in Aberdeen; though native in a few places in England. Often cultivated as a rock-plant, it is easily established on walls.

Observed by me on the wall of an old garden near Kepplestone, in October, 1907.

Adt. Ps. : B : : : : . Plentiful on a low wall of stones and earth by a road near Portlethen Station.

S. anglicum, Huds. English Stone-crop. Native and abundant in the West of Scotland; but rare in the East, and not native near Aberdeen. Often cultivated as a rock-plant.

I have once or twice seen it on old walls about Aberdeen. "Formerly near Aberdeen; a casual?" (Dr. John Roy). In a manuscript note Dr. Roy states the locality as "A sandy haugh on Dee, north side, immediately above the Old Bridge." It has disappeared from that locality very soon after he first saw it there.

Adt. Ps. : : M : : : It is "naturalised on gravel in front of Kingcausie House."

S. reflexum, L. Crooked Yellow Stone-crop. A rare denizen. Native in N. and Central Europe, including England. Often cultivated on walls, etc.

"In Sir C. Gn.'s horti muris" (Skene). "Roofs of houses in Spital, 1806" (Knight).

A large patch has been growing and spreading for many years beside the railway to the west of Ruthrieston Station, in the outskirts of Aberdeen.

S. spurium, Bieb. Native of the Caucasus. Often cultivated on rockeries, etc. Casual on rubbish near Bucksburn.

Sempervivum tectorum, L. House-leek. On roofs, where planted. Native probably in S. Europe.

"Passim in muris et tectis" (Skene). "House-roofs in Spital and at Bridge of Don" (Knight). "On tops of houses at Footdee and Torry; at Jack's Brae and Gilcomston; on tops of houses and walls at the Bridge of Don" (Cow).

The House-leek has become rare on roofs in Aberdeen, in part because of the general use of slates for roofs, but chiefly, no doubt, because of its having lost its former repute as a domestic remedy, and as warding off lightning from the buildings on which it grew.

Adt. Ps. : : : P : : O. Rare.

DROSERACEÆ.

Drosera rotundifolia, L. Round-leaved Sundew. Native in wet moors.

"Mosses at Torry" (Beattie). "Moss of Ferryhill" (Knight and Harvey). "On Commonty Moor; in Pitmuxton Marsh" (Cow).

It has been extinct within Aberdeen at least since about 1880,

when Stocket Moor was cultivated; but it must formerly have been common here.

Adt. Ps. In all; common on swampy moors and in peat-bogs.

[*D. anglica*, *L.* Long-leaved Sundew.] Native; though not known from Aberdeen.

Adt. Ps. : B : : : O. Abundant on some parts of Scotston Moor; and also grows on the Red Moss, near Portlethen.

[*D. obovata*, *Mert et Koch*], a hybrid between *D. anglica* and *D. rotundifolia*, has been once or twice found by me on Scotston Moor, where the parents were growing intermingled.

HALORAGACEÆ.

Hippuris vulgaris, *L.* Mare's-tail. Native; in pools and bogs.

"Pollburn, Ferryhill" (Beattie). "Moss of Ferryhill" (Knight hb., Harvey, Murray in N. Fl., B. G.). "Pitmuxton Moss" (Cow).

It appears to have become extinct in Aberdeen when the Moss of Ferryhill was drained, more than fifty years ago; but it was probably not rare in the pools and swamps so numerous in the parish at one time.

Adt. Ps. Ng (probably extinct) : M P : : O. Plentiful in a few bogs.

Myriophyllum spicatum, auct. an *L.*? Water milfoil.

"Frequens in fosis, lacubus et rivulis" (Skene). "In Dee Don, Canal, etc." (Fl. Ab.).

The true *M. spicatum*, *L.* is not common in N.E. Scotland; and as *M. alterniflorum*, *DC.* is the only one of which there is any certain evidence as occurring in Aberdeen, there is little doubt that these records refer to that plant. It is still common in the rivers, and in some of the quarry ponds in Aberdeen; but must have been much more common formerly.

Adt. Ps. (*M. alterniflorum*). In all; abundant in suitable habitats. *M. spicatum* has not been observed within any of the parishes in the immediate vicinity of Aberdeen, though it is native in the counties adjoining.

Callitriche verna, *L.* Vernal Water-starwort. Native in pools, streams, and mud.

"In aquis stagnantibus" (Skene). "Pond near Rubislaw House; Ferryhill Moss; King's Links, etc." (Knight). "Den of

Rubislaw ; Pitmuxton Marsh ; in ditches by the side of the Links, south of the Brickwork " (Cow).

In these records, under the one name, are included more than one form. I have found the following within Aberdeen, frequent in places :—

C. stagnalis, *Scop.* On wet mud and in shallow water of pools and ditches.

C. intermedia, *Hoffm.* (*C. hamulata*, Kutz.). In the Dee, and in pools in old quarries at Hilton and elsewhere, usually in the deeper water, but often extending on to, and growing on the wet mud by the water.

Adt. Ps. Both forms are abundant in all.

[**C. autumnalis**, *L.*]

I found this in fair quantity in the mill dam a little north of the New Bridge of Don, in October, 1912.

LYTHRACEÆ.

Pepelis Portula, *L.* Water-purslane. Native in wet places ; but long extinct in Aberdeen, where it was local and rare.

"In palustribus et aquis" (Skene). "Stocket" (Knight). "In a little marsh at the north end of the road bounding Summerhill upon the west ; Stocket Moor" (Fl. Ab.).

There appears to be no later record than this of its existence within Aberdeen.

Adt. Ps. Ng : : P : D O. Very local ; though plentiful here and there.

Lythrum Salicaria, *L.* Upright Purple-loose-strife. Casual in Aberdeen, as an outcast or escape from gardens ; but native in many parts of Britain.

Rare in Aberdeen, and usually on rubbish, e.g., on old bed of the Dee.

Adt. Ps. : B : P : : : . Well naturalised by Culter Burn, above the dam ; one plant by the Dee, near Ardoe in 1914.

ONAGRACEÆ.

Epilobium angustifolium, *L.* Rosebay Willowherb or French-Willow. Native in the surrounding counties, but apparently an outcast or escape from cultivation in Aberdeen.

"Bridge of Don" (Beattie). "Den of Rubislaw" (Knight).

“On the side of a field near Rubislaw Bleachfield ; side of a field west the Old-town Church ; in the Spital Churchyard ” (Cow).

I have seen this within the parish in the neighbourhood of gardens and cottages, but always as the short-fruited cultivated type; and there is little doubt that Cow's notes refer to similar occurrences. The species has disappeared from his localities.

Adt. Ps. Native on the coast in Banchory near Portlethen, in a moss $1\frac{1}{2}$ mile N. of Portlethen Station and in the Corbie Den, Maryculter. In August, 1917, I found it in a small wood East of Grandholm in Oldmachar. I have seen the variety *brachycarpum* in Ng and B, in situations at some distance from houses or gardens, such as peat-mosses.

E. hirsutum, L. Great Hairy Willowherb. Native in N.E. Scotland, but not in Aberdeen.

“Den of Rubislaw ” (Cow). There is no other local record, and this is not improbably erroneous, as Cow was not accurate in his naming of plants.

Adt. Ps : B : : : : . A fairly large patch found by me in September, 1910, on the bank of the Dee below the church of Banchory-Devenick.

E. parviflorum, Schreb. Small-flowered Hairy Willowherb. Native in N.E. Scotland, but not in parishes adjacent to Aberdeen.

“Den of Rubislaw ; in a bog on the Links south of Don mouth ” (Cow).

As there is no other notice of *E. parviflorum* from Aberdeen or its vicinity, this record is probably due to wrong identification of another species, possibly of *E. obscurum*, which is not given in Cow's “Catalogue” though common locally.

E. montanum, L. Broad-leaved Willowherb. Native by streams, in thickets, on rough waste ground, etc.

“Passim ad rivulos ” (Skene). “Rubislaw ” (Beattie). “Hilton ” (Knight). “Donside, above and below the bridge ; Den of Rubislaw ; at Woodside by the river ” (Cow).

It is still common in the natural habitats left to it, such as old quarry-heaps, and is a frequent weed of gardens, especially on damp soil.

Adt. Ps. In all ; general and often common.

E. tetragonum, L. Square-stemmed Willowherb. Native.

“Burn above Rubislaw Den ” (Beattie). “Rubislaw Den ” (Knight). “Common ” (Fl. Ab.).

Of the forms that used to be included under this name the one that grows near Aberdeen is *E. obscurum*, Schreb. It is frequent in ditches and on other moist soils, and is also rather common on old walls that retain moisture. A hybrid between *E. montanum* and *E. obscurum* is not uncommon where the two species grow intermingled, e.g., near the Cruives on the Don.

Adt. Ps. *E. obscurum* is plentiful in all, in suitable localities.

E. palustre, *L.* Narrow-leaved Willowherb or Marsh Willowherb. Native, but perhaps extinct in Aberdeen.

"Donside, below the bridge, in a marsh, west side the Links; in Powis Burn, near the Links" (Cow).

I can find no other notice of its having been observed within Aberdeen; nor have I seen it here; but it is plentiful in similar localities and on wet moors, such as covered a large part of Aberdeen within 200 years past.

Adt. Ps. In all; common on wet moors, and in marshes in various spots near the sea.

[**E. alpinum**, *L.* Lesser Alpine Willow-herb.] Native in the upper part of Deeside, whence it is carried by the river, and may be found on shingles, though rarely within a good many miles of Aberdeen.

Adt. Ps. : : (M) (P) : : .

Circæa, *L.* Enchanter's-nightshade. The evidence of both published records and specimens is perplexing with regard to the forms referable to this genus in Aberdeen. The records are as follows:—

C. lutetiana, *L.* "Den of Rubislaw" (Dr. Murray, in N. Fl., with the statement that the specimen, gathered by Mr. W. Smith, "is not a well marked plant"). Cow also gives "Den of Rubislaw" for *C. lutetiana*; but his evidence is of little value for a critical plant. There is a specimen in the Laing hb., labelled "Den of Rubislaw, 1839," which suggests *C. lutetiana*; but it also is not well marked.

Careful examination of the living plants both in Rubislaw Den and in a few other localities in which the genus grows near Aberdeen has never disclosed *C. lutetiana*.

C. alpina, *L.*

"Den of Rubislaw, and occasionally on the banks of the Dee and the Don" (Dr. Murray in N. Fl.). "Den of Rubislaw, abundant" (Fl. Ab.).

The plant referred to in these entries is still common in the Den, and in the Black Neuk just above the Old Bridge of Don, on the north bank; and it also grows in the Corbie Den, Maryculter. As far as I understand the forms it is *intermedia*, Ehrh.

UMBELLIFERÆ.

Hydrocotyle vulgaris, L. Marsh Pennywort or White-rot. Native in damp places; but perhaps extinct in Aberdeen, since 1904.

"Ubique in aquis stagnantibus, solo humido" (Skene). "Stocket" (Knight). "Pitmuxton Marsh; Den of Rubislaw" (Cow).

It grew on Stocket Moor until that was cultivated about 1880; and it was rather abundant on a wet part of Old Aberdeen Links, on the west side between Linksfield and East Seaton. The deposition of town-refuse on that part, during and since 1903, to form a football-ground, has probably extirpated the plant there. It must have been very common within the parish before the surface was drained and cultivated; but I am not aware of its still existing here.

Adt. Ps. In all; abundant in many places.

[*Sanicula europæa*, L.] Wood Sanicle. Native in a few woods in the valley of the Dee, though not known to have grown in Aberdeen.

Adt. Ps. : : M : : : . In the Corbie Den, Maryculter, it has been known for over a hundred years.

Conium maculatum, L. Hemlock. Denizen here, though accepted as native in many parts of Scotland.

"Very abundant" (Knight). "Common; near Park Street; at Footdee; near King's College; at Torry; abundant" (Cow).

Rather local; but frequent by roads and on waste ground, its distribution indicating that it is not native in Aberdeen. Possibly it had been cultivated formerly because of its repute in medicine.

Adt. Ps. Ng B : : Nh D O. A very local, and in most places a rare plant.

Smyrniololus atrum, L. Alexanders. Native in S. Europe; often cultivated in gardens formerly for properties no longer esteemed, leading to its occurrence as an outcast or escape at times.

"Not common about Aberdeen" (Cow). "Cornhill, Mr. A. Smith" (P. M.).

I have only once found it growing in Aberdeen, at the lower end of Rubislaw Den. It is little more than a casual here.

Adt. Ps. (Ng) : (M) (P) : : . A scarce casual.

Bupleurum rotundifolium, L. Common Hare's-ear. Rare casual. Native in S.E. Europe, and a common field weed throughout most of Europe.

Found by me on town-refuse, in 1896, where Pittodrie Football-field now is, and again on Old Aberdeen Links, in 1907 and 1909.

Apium inundatum, *Reichenb.f.* Least Marsh-wort. Native in pools and swamps.

"Burn W. of Stocket, below the road. Moss of Ferryhill" (Beattie). "Stocket Moor, 1834" (Dickie hb.). "In a ditch and side of a marsh by the Links south of the Don" (Cow). "Marshes at Stocket near Summerhill" (B. G.).

For many years apparently extinct in Aberdeen.

Adt. Ps. : B : P Nh : O. Very local; but common where it occurs.

A. graveolens, L. Celery. Native on the coasts of S. Scotland, and England, and of S. Europe; cultivated in gardens in Aberdeen, and occurring as a casual outcast or escape.

"Near the Craiglug, Dr. Murray, rare" (Fl. Ab.).

It has been found by me on the old bed of the Dee, in 1893, and on refuse-heaps here and there; but it is a mere casual.

Adt. Ps. : B : : : : .

A. leptophyllum, (DC.) F. Muell. A rare casual. Native in N. and Tropical America, and in Australia.

Once found by me, in October, 1907, on rubbish on Old Aberdeen Links.

Carum Petroselinum, Benth. et Hook. f. Parsley. Native in S. Europe, but widely cultivated. In Scotland a casual from cultivation.

"Occasionally about Aberdeen, though not indigenous; Den of Rubislaw" (Cow).

It is not uncommon on town-refuse, but soon disappears.

C. Carvi, L. Common Caraway. Native of N. and Central Europe; formerly a favourite garden herb, and still very frequent

in country districts where it grows commonly around farms and cottages, as a denizen.

"On waste places near houses ; at Berryden ; east the Craiglug-bridge" (Cow).

I have seen this within Aberdeen only on the Football-ground near Linksfield in 1909.

Adt. Ps. : B M : : (D) (O). Rarely seen near Aberdeen.

Ægopodium Podagraria, L. Gout-weed or Bishop-weed. Native in E. Europe ; but probably a denizen in Britain, though only too plentiful.

"Pestis hortorum" (Skene). "Too abundant" (Cow). "Not a true native" (B. G.).

This is a most troublesome weed, spreading rapidly by its underground stems, as well as by its seeds, and most difficult to eradicate. It has thus become very plentiful in this district in cultivated soil, near houses, and on waste ground, often spreading from weed-heaps ; but its distribution shows that it is of alien origin. Once in repute, and cultivated, for properties no longer esteemed, it has thoroughly established itself around Aberdeen.

Adt. Ps. In all ; locally abundant.

Pimpinella Saxifraga, L. Common Burnet-saxifrage. Native in natural pastures ; perishing when the soil is cultivated.

"Rubislaw Den" (Knight). "Old Town Links, 1835" (Dickie hb.). "East side of a field south of Donmouth" (Cow). "Banks of Dee, east from the Old Bridge" (Fl. Ab.).

It still grows in small quantity on the dunes near Donmouth, and on a bank and earthen wall by the west side of the Links near the Don, as also on the island in the Don above the New Bridge.

Adt. Ps. In all, though rather local, and seldom plentiful.

Conopodium denudatum, Koch. Earth-nut ; locally Arnut. Native.

"Passim in pratis et pascuis" (Skene). "Den of Rubislaw, etc." (Knight, and Dickie hb.).

Still to be found in natural pastures and on waste ground about Rubislaw, Hilton, etc. ; but it is now rare, though it was probably a very common plant formerly on grassy moors, and in natural pastures within the parish.

Adt. Ps. In all ; often common.

Myrrhis Odorata, L. Sweet Cicely; locally called Myrrh. Native in mountain pastures of Europe. Long esteemed and cultivated as a flavouring herb in gardens, it has been dispersed from these, and has established itself abundantly as a denizen, especially by streams.

"In the Den of Rubislaw" (Knight). "On Donside, above the bridge; at Hilton" (Cow).

It is still plentiful in Rubislaw Den, and by the Don in Seaton.

Adt. Ps. In all; often abundant by streams, though local; an escape or outcast from former cultivation.

Chærophylloides temulum, L. Rough Chervil. Native in Britain; but in N.E. Scotland rare, and seems limited to roadsides; hence it may not be native here.

"Old Aberdeen, Beattie" (Knight). "By a hedge a little north-west of Kittybrewster Toll, 1835" (Dickie hb.). Cow mentions the same locality, adding "abundant."

By 1871 it had become rare at this place; but it continued to survive there, in the hedge near a gate, until about 1900, when alterations on the hedge and gate seem to have extirpated it. There is no other record for it in Aberdeen; nor does it seem to grow in the immediately adjacent parishes.

Scandix Pecten-Veneris, L. Shepherd's-needle or Venus'-comb. Casual only near Aberdeen, though a frequent weed of cultivated soil in S. Scotland and England; native in E. Europe.

"In a field west from Kemhill" (Cow). "Among rubbish at the south end of Crown Street, 1862" (J. Roy, in MSS.).

It was rather common, in 1893 and some years thereafter, on the old bed of the Dee, near the Railway Station. I have once or twice found it as a weed in gardens and fields near Old Aberdeen, and by the railway near Kittybrewster.

Adt. Ps. Ng :: (P) : (D) :: A very rare casual.

Fœniculum vulgare, Miller. Common Fennel. A rare casual near Aberdeen; though native on parts of the British coasts.

Occasionally on town-refuse or waste ground.

Anthriscus vulgaris, Bernh. Common Beaked-parsley. Native in woods in Croatia, its distribution suggests that it is an alien elsewhere.

"Passim ad vias" (Skene). "Front of Nellfield" (Beattie). "Gilcomston" (Knight). "Near the Old Town, etc." (Harvey).

"At foot of wall in Seaton-gate; by side of Don Street; on side of road leading to Don-bridge, etc." (Cow). "By the roadside near Gilcomston Dam, and other places; but not common" (Fl. Ab.). "By the old Deeside Road between Ferryhill and the Bridge" (P. M.).

I have seen it as an apparently wild plant in Aberdeen only in the last locality, where it grew in a recess by the road; but it was extirpated there in the formation of the drive by the Dee. It appears now to be extinct near the city; where its restriction to roadsides and by walls showed it to be only a denizen.

Adt. Ps. Ng B M P : D O. Local, and rarely plentiful; probably native in a few places, but dispersed by man's aid.

A. sylvestris, Hoffm. Wild Beaked-parsley. Frequent in pastures, by roads and on waste ground; probably native, but dispersed also by man.

It is recorded as common by all from Skene onwards.

Adt. Ps. In all; common.

A. Cerefolium, Hoffm. Cultivated Chervil. Outcast or escape from cultivation in gardens. Native in S.E. Europe.

"Rubislaw Den" (Dickie hb.).

First observed by me as a well-established denizen in 1897, covering a space of many yards in extent by a road near Seafeld Cottage, Rubislaw. There are also plants growing by the West Burn of Rubislaw, perhaps from seeds from this bed, which is not far from the burn.

Ænanthe crocata, L. Hemlock Water-dropwort. Native in wet places, chiefly by sea-coast and estuaries.

Though this grows in two or three places on the coast between Stonehaven and Muchalls, and is very abundant by the estuary of the Ythan, it had not been observed in Aberdeen or the adjacent parishes until 1902, when I found one plant by the Don, on the north shore near the Lifeboat house. In July, 1907, I was surprised to find it in some plenty by a muddy creek on the south bank of the island in the Don above the New Bridge. In June, 1912, I found seven or eight plants well established on the low swampy sward west of the mouth of the Tile Burn.

Æthusa Cynapium, L. Fool's Parsley. Colonist in a few gardens, as a weed. It is not known in the truly wild state; but

may be a form of *Æ. cynapioides*, M.B., which is native in S.E. Europe.

"In hortis inter *Petroselinum*, etc." (Skene). "Spittal garden" (Beattie). "Ferryhill, Spital, etc., common" (Knight). "In the garden of Gordon's Hospital, plentiful; in fields at Gilcomston" (Cow). "On the Inch, etc." (Fl. Ab.).

Not rare in gardens in Old Aberdeen. I have also seen a few plants on waste ground beside Albion Street, near the Links.

Meum Athamanticum, *Jacq.* Bald Money; Highland Micken. Native in the valley of the Dee; but rarely in lower levels, except where brought by the river from the uplands, hence on the banks.

"Rubislaw Den" (Cow). This may be erroneous, as it was scarcely likely to grow in the den.

I have seen one or two examples by the Dee near Allenvale.

Adt. Ps. : B M P : : : . Only by the Dee, on the banks and shingles.

Ligusticum scoticum, *L.* Scottish Lovage. Native on coasts.

"Rocks at Torry, 1833" (Dickie hb.).

The inclusion of a part of Nigg within Aberdeen adds this plant to the flora of the parish, as a few examples grow near the mouth of the Dee. It is very common on the rocky coasts of Kincardineshire and Buchan; but is very rare on the intermediate sandy coast. It has not been observed between Dee and Don.

Adt. Ps. Ng B : : : O. Only once found by me in Old-machar.

Angelica sylvestris, *L.* Wild Angelica. Native in wet soils.

"Donside, above and below the bridge; in the Den of Rubislaw" (Cow).

Still common in both localities, as well as by ditches and in marshy ground elsewhere in the parish; but must have been much more common before drainage of the surface.

Adt. Ps. In all; common.

Peucedanum Ostruthium, *Koch.* Masterwort. A rare sub-denizen, from former cultivation in gardens. Native in Central and S. Europe.

"Forrester Hill, corner of Leslie's garden" (Beattie). "In the Den of Rubislaw" (Cow).

A small patch of it still grows in the Den.

Adt. Ps. : B M P Nh D O. A rare denizen.

P. sativum, Benth. et Hook. f. Cultivated Parsnip. Casual or outcast. Only as a cultivated plant in Scotland; native in Europe including England.

Not infrequent on refuse and waste ground in and near Aberdeen; but soon dying out.

Heracleum Sphondylium, L. Hogweed or Cow-parsnip. Native.

“Passim ad sepes et in pratis” (Skene).

Very general and frequent in natural pastures, by roads and hedges, and on waste ground.

Var. **angustifolium**, Huds. Occasionally with the type; but much less frequent.

Adt. Ps. In all; common.

Coriandrum sativum, L. Coriander. Rare casual. Probably native in S. Europe, where it is a frequent weed of fields.

“On the Inch, opposite the dockyards. Rare” (Fl. Ab.).

A few plants were found by me, in 1903 and 1904, on town-refuse on Old Aberdeen Links, perhaps from seeds among grain-siftings.

Daucus Carota, L. Carrot. The wild form appears to be native here, though rare; but as it is almost restricted to artificial pastures it may be introduced with grass-seeds. The cultivated form is not scarce on town-refuse, e.g., on Old Aberdeen Links, or as a relict by fields.

“Inches, 1835” (Dickie hb.). “In the Old-town Churchyard; in a field west of the Broadhill” (Cow).

I have found the wild form in Ruthrieston and near Old Aberdeen.

Adt. Ps. Ng : : P Nh D O. Nowhere common.

Caucalis latifolia, L. Great Bur-parsley. Casual. Probably native in S. Europe; but a cornfield weed over much of Europe.

Two or three examples were found by me on the old bed of the Dee near the Railway Station, in 1897, probably from grain-siftings; and on town-refuse in 1901 on Old Aberdeen Links, near Linksfield, and in 1911 by the new road east of New Bridge of Don.

C. daucoides, L. Small Bur-parsley. Casual. A cornfield weed over much of Europe; probably native in S.W. Asia.

With *C. latifolia* on Old Aberdeen Links in 1901, and by the new road east of New Bridge of Don in 1911.

C. Anthriscus, *Huds.* Upright Hedge-parsley. Probably native in N.E. Scotland, though its prevalence by roads and sides of fields suggests that it may be a denizen. Its rough fruits are very readily dispersed by sticking to the bodies of animals.

"Crescit ad pontem Don" (Skene). "On a roadside west of Cluny's Lane" (Cow).

It is not mentioned as an Aberdeen plant by any other person. The only place in the parish where I have seen it growing is by the side of a field near the north end of Don Street.

Adt. Ps. Ng B M P Nh : O. Very local, though in some localities common; but always near roads or dwellings, or in hedges.

C. nodosa, Scop. Knotted Hedge-parsley. Casual, on town-refuse usually; accepted as native in some parts of Scotland.

"Bank opposite to the Sugar House, 8th July, 1808" (Beattie).

Several plants were found by me, in 1893, on the old bed of the Dee.

ARALIACEÆ.

Hedera Helix, *L.* Ivy. Native in N.E. Scotland; but often planted.

"Banks of Don, near the old bridge; rocks near Craiglug, upon the south side of the river; Rubislaw" (Cow, and others.)

Still in all these localities, being evidently wild by the Dee and Don. The cultivated form is seldom likely to be mistaken for the wild plant.

Adt. Ps. Ng B M P Nh : O. Rather local; but plentiful in places.

CORNACEÆ.

Cornus sanguinea, *L.* Dogwood. Alien. Native of Europe, including England.

"In the Den of Rubislaw, not indigenous" (Cow).

Only where planted.

GAMOPETALÆ.

CAPRIFOLIACEÆ.

Adoxa Moschatellina, *L.* Moschatel. Native, in thickets and woods.

"Den of Rubislaw" (Knight and B. G.).

It still grows in one spot in the Den; but it is scarce.

Adt. Ps. : B M (P) (Nh) : : . Very local; on shaded banks.

Sambucus nigra, L. Common Elder; Bourtree. Almost a denizen. Native in Europe including S. Britain, in N. Africa and in W. Asia.

"Crescit in sepibus" (Skene). "In woods and hedges, common; Den of Rubislaw; Woodside; Powis Hermitage, etc." (Cow).

A favourite near cottages, and in fences around gardens, this sometimes remains when the cottages and gardens have disappeared. Its seeds are so readily dispersed by birds that it often is sown by them in thickets and on broken ground, where it appears to be native.

Adt. Ps. In all; a common denizen.

S. racemosa, L. Scarlet-berried Elder. Native in Continental Europe. Frequently planted in gardens and shrubberies for ornamental ends, this also is dispersed freely by birds; and in some woods in Aberdeenshire it has become extremely common, so as to be troublesome, and a well-established denizen.

I have seen only one or two bushes in apparently wild state in Aberdeen.

Adt. Ps. : : M P Nh D : . Becoming more common.

S. Ebulus, L. Dwarf Elder or Danewort.

"Maryculter churchyard" (Beattie and Knight).

Viburnum Opulus, L. Guelder Rose. Native in Scotland; but probably planted in Aberdeen.

"In the Den of Rubislaw" (Cow).

There is no other record of it as other than planted in Aberdeen; but it is found in the valley of the Dee west from Cults, in localities that support the belief that it is native there, though rare and local.

Adt. Ps. : : M P : : : .

V. Lantana, L. Wayfaring Tree. Alien, scarcely a denizen; by roads and in shrubberies, e.g. at Countesswells.

Adt. Ps. : : M P Nh : O. In only a few places.

Lonicera Periclymenum, L. Common Honeysuckle. Native in woods and thickets.

"In rupibus Don" (Skene). "In the Den of Rubislaw; at Hilton, abundant" (Cow). "South bank of the Dee, at Craiglug, etc., frequent" (Knight and Fl. Ab.).

It still grows in all these localities.

Adt. Ps. In all; frequent.

L. Caprifolium, L. Perfoliate Honeysuckle. Only where planted here.

“Den of Rubislaw” (Cow).

Symphoricarpus racemosus, Michx. Snowberry. A not uncommon subdenizen, dispersed from where planted in shrubberies. Native in America.

In Seaton and elsewhere.

Adt. Ps. : : M P Nh : O. Almost a denizen in a few places.

[*Linnæa borealis*, L.] Two-flowered Linnæa. Native near Aberdeen in woods at Hazelhead, etc.

Though there is no record of its having been found within Aberdeen, there is little doubt that it had grown in the districts of Stocket and Rubislaw formerly.

Adt. Ps. : B M P Nh (D) O. Very local, but in fairly large patches.

RUBIACEÆ.

Galium boreale, L. Northern Bedstraw. Native.

“Pitmuckston” (Knight). “Between the Bridge of Dee and Craiglug” (Dr. Murray in N. Fl.). “On a dry bank below the Bridge of Dee; on the sandy Links below Footdee” (Cow).

This bedstraw still grows in small quantity on the bank of the Dee near the Old Bridge; but its habitat on the Links at Footdee has long been covered with buildings. In 1891 I found a patch in flower on dunes about a hundred yards north-east of the Broadhill; but that was destroyed by the formation of the road on the coast about 1903. In July, 1908, I came on another small patch a little to the west of where the former had been.

Adt. Ps. Ng B M P : : . Common by the Dee west from Cults.

G. Cruciata, L. Cross-wort Bedstraw. Very local and scarce; but probably native.

It is strange that a plant so very common in S. Scotland should be so rare in this district that the only published record is “Said to have been met with in the neighbourhood of Aberdeen” (Dr. Murray in N. Fl.). I have seen it in two localities here, where it still grows, in limited amount in each. One of these is near Walker’s Dam, discovered in 1893; the other is by the side of a ditch between Old Aberdeen and Woodside, but here it seems in danger of being choked out by coarse vegetation. It was dis-

covered in 1881 by Mr. William Scott while a student in the class of Botany. I am not aware of any other authentic record for this species from the adjacent counties, though reported in Murray's Northern Flora thus—"Buchan. Anonymous."

G. verum, *L.* Lady's Bedstraw. Native; common in drier pastures.

"Passim in arenosis, muris, et locis siccis" (Skene). "On the Broadhill, and on the Links; at Woodside, by the river, abundant" (Cow).

It is still very plentiful on the Links, often in a starved form; and it also survives on quarry-heaps and other waste places in other parts of the parish, though much less general than it had been formerly.

Adt. Ps. In all; very general, and often plentiful.

G. erectum, Huds.

On 16 October, 1915, I found a strong clump of this in fruit and flower on the refuse heap at Mugiemoss Paperworks in Newhills. In September, 1916, I found a large patch of a weak form of this, in leaf only, on the island in the Don between the Old and the New Bridges.

G. Mollugo, *L.* Great Hedge-bedstraw. Not native here.

"Roadside below Gordon's Mills and Printfield" (Beattie). "Gordon's Mills, Beattie; but I never found it" (Knight). "At the Printfield" (N. Fl.).

There is no other evidence of its occurrence here; and the name as used in N. Fl. included both *G. Mollugo vera* and *G. erectum* Huds. Both are very rare in this district. The former is confined, so far as I have seen it, in N.E. Scotland to a very few places, all beside railways or roads, where the seeds might probably be of alien origin. By the railway near Parkhill Station was the nearest locality to Aberdeen known to me, until on 31 July, 1915, I found a large patch on the lawn at Craibstone House.

G. erectum, more often grows in fields of more or less permanent artificial pasture, in small patches only. I have found it in several places in Aberdeenshire, but not within several miles of Aberdeen.

G. saxatile, *L.* Stone-bedstraw. Native, and often plentiful, in poor pastures, such as grassy moors.

"Vulgatissima in aggeribus et ad vias" (Skene).

Common on quarry-heaps, by waysides in natural pasture, on the Links, etc., though considerably restricted by cultivation of the moors.

Adt. Ps. In all ; very frequent.

[*G. asperum*, Schreb. (*G. sylvestre*, Poll.). Mountain-bedstraw.] Very rare.

In 1904 I found a few slender examples of the hairy variety of this species on a bank by the railway at Persley, just beyond the limits of Aberdeen ; but there is no other record of its occurrence in this neighbourhood ; and the Persley form is different from that of North-east Buchan, where I found it locally not uncommon in 1901.

G. palustre, L. Smooth Marsh-bedstraw. Native in marshy places.

"Ad ripas fluentorum" (Skene). "Old Town links" (Beattie). "Ditches near Broomhill, 1834" (Dickie hb.). "Rubislaw Commonly, and near the Dee" (N. Fl.).

Though still existing by streams and in wet places in outlying parts of Aberdeen, this bedstraw is now scarce in the parish, but it must have been abundant before drainage.

Var. *Witheringii* (Sm.).

"Not uncommon, and has been observed by Mr. Dickie in the vicinity of Aberdeen" (N. Fl.).

The variety is more common in this district than the type of the species.

Adt. Ps. In all ; both species and var. *Witheringii*, the latter especially often abundant. Var. *elongatum* (Presl.) grows by the Dee above the old Bridge, in Nigg and near Cults.

G. uliginosum, L. Rough Marsh-bedstraw. Native in wet pastures ; very local, and now extinct in Aberdeen.

"Den of Rubislaw ; Stocket Moor ; Woodside" (N. Fl.). "In ditches, south side of the Links from Don" (Cow). "Stocket Moor" (Fl. Ab.).

I have not seen this growing within Aberdeen ; nor have I seen any example from within the parish ; but I believe the records to be trustworthy, except perhaps Cow's, which may refer to *G. palustre*, var. *Witheringii*.

Adt. Ps. (Ng) : M P Nh D O. Very local ; but in a few places common. It is more general and frequent in localities farther inland.

G. spurium, L. False Goosegrass. Casual on town-refuse. Native in Central and S. Europe, where it is a field-weed; probably brought to Aberdeen with seeds of cereals.

A few found by me, in 1903, on rubbish beside the new drive near the beach, on Old Aberdeen Links.

Var. *Vaillantii*, DC.

More frequent than the type as a casual on rubbish, probably from grain-siftings, from 1903 onwards, on Old Aberdeen Links, and elsewhere near Aberdeen; also near Dyce and Kintore Stations.

G. Aparine, L. Goosegrass or Cleavers. Native; on sea-coast, in thickets, fields, etc.; a common weed in cultivated ground from easy dispersal.

“Ubique ad vias et in cultis” (Skene). Noted as very common in all lists.

Adt. Ps. In all; frequent, especially among shingle on the coast.

G. tricornis, Stokes. Rough-fruited Corn-bedstraw. A not uncommon casual on town-refuse, and occasionally as a weed among tares and corn. A common field-weed over Europe, and probably native in E. Europe.

Since 1903 I have frequently met with this bedstraw on town refuse, on Old Aberdeen Links, in Ferryhill, in fields near Old Aberdeen, and among tares and corn in several country parishes. Introduced apparently among agricultural seeds from Europe, it seems not unlikely to establish itself as a colonist.

Asperula odorata, L. Sweet Woodruff. Native in a few wooded glens in the adjacent counties, but in Aberdeen only an outcast or escape.

Occasionally near gardens and by-roads around the city, or a relict on ground formerly occupied by a garden.

Adt. Ps. : : M P : : : . Native in Corbie Den, an escape at Culter.

[*A. arvensis*, L. Field Woodruff.] Native of S. W. Asia, and a frequent cornfield weed in some parts of Europe.

Occasionally among “foreign tares” and corn in Aberdeenshire and Kincardine. I have not seen it in Aberdeen.

Adt. Ps. Ng : : : : : . By the Dee above the Railway Bridge in 1906, Mr. J. Rae. I have seen it near Inverurie and in Midmar in fields.

Sherardia arvensis, L. Field Madder. Native probably, though its prevalence in cultivated soil suggests that it may be a denizen only.

"At Broomhill, etc." (Harvey). "Not uncommon in dry fields, but probably never remote from cultivation" (N. Fl.). "Roadside, Stocket, 1833" (Dickie hb.). "In fields by the Gallowgate and at Kemhill, etc." (Cow).

Rather frequent as a weed of cultivation, but also on dry banks, earth walls, and other places with thin soils and poor vegetation.

Adt. Ps. In all; frequent.

VALERIANACEÆ.

Valeriana officinalis, L. Common Valerian. Native by streams and on wet soils.

"Ad ripas fluminum" (Skene). "Rubislaw Burn, etc." (Beattie). "Craiglug; Rubislaw; frequent" (Knight). "Near Aberdeen in many places, as on the banks of the Dee and Don, Den of Rubislaw, etc." (N. Fl.).

Still in these localities, but less frequent. It must have been much more generally distributed in Aberdeen before drainage.

"*V. dioica*, L. Donside above Grandholme" (Beattie).

There is no confirmation of this species occurring in the district, even as a casual, hence one must suppose that the note rests on a mistaken identification, perhaps of a dwarf example of the larger species. The locality would be in Old Machar.

V. pyrenaica, L. Heart-leaved Valerian. Native in the Pyrenees; only an alien in Britain.

"In Berryden I found a few plants scarcely indigenous" (Cow). I do not know of this as a denizen in Aberdeen.

Adt. Ps. : B M : : : . Well established in one place not far from the Dee in Banchory above Ardoe.

Valerianella olitoria, Poll. Common Corn-salad or Lamb's-lettuce. Probably native in Aberdeen; but apparently now extinct.

"Old Aberdeen Links, on sandhills opposite the Brickwork, Dr. Fleming" (N. Fl.). "Field near the Printfield, Mr. A. Smith" (P. M.).

This has not been observed on the Links for over half a century; and probably the "field near the Printfield" has long been covered by the houses of Woodside.

Adt. Ps. : : : (P) (Nh) : O. I have seen it in some plenty on

a heap of refuse near Grandholm Mills, in Oldmachar; but it seems to be an alien there. As I have not seen it in P or Nh, I cannot say what its claim to be native is in either. It is certainly native on the coast south of Muchalls in several places.

V. microcarpa, Lois. A rare casual, native in the Mediterranean area.

In July, 1910, I found several plants growing on materials used for widening the railway embankment near Don Street Station.

DIPSACACEÆ.

Scabiosa Succisa, L. Devil's-bit Scabious. Native in natural pastures; and must formerly have been abundant in Aberdeen.

"Passim in pascuis" (Skene). "Den of Rubislaw" (Cow).

Still grows on the sand-dunes, also on quarry-refuse and by roads in the inner parts of the parish; but it is now rather a local plant here and not abundant.

Adt. Ps. In all; abundant in most natural pastures.

S. arvensis, L. Field Scabious. Native in S. Scotland, but probably not near Aberdeen, where it is rare and uncertain in appearance.

"Craiglug, Mr. A. Smith" (P. M.).

I found two plants in 1890, in a field west of the Chanonry in Old Aberdeen. The field has remained in grass; but the plants disappeared before 1900. A few sprung up on the rubbish used to fill the old bed of the Dee, in 1895 and following years; but they soon disappeared. The species is a mere casual here, though it is common from St. Cyrus southwards.

Adt. Ps. : : : : (D) (O). Very rare casual.

[*Dipsacus fullonum*, L.]

On rubbish near Daneston in Old Machar, in September, 1917.

COMPOSITÆ.

Eupatorium cannabinum, L. Hemp-agrimony. Native on rocky coasts.

In Beattie's copy of Lightfoot's *Flora Scotica* is a note "Above and below ye Bridge of Dee;" but I have no confirmation of this habitat.

Adt. Ps. : B : : : : . In one place in Banchory; but frequent on the coast southwards.

Solidago Virgaurea, L. Common Golden-rod. Native; not common.

“Passim in sylv. ad rupes Don” (Skene).

This note perhaps refers only to the north bank of the Don at the Old Bridge; but the plant still grows in small quantity on the south bank of the Don, both above and below the bridge. I have seen a few examples on the north bank of the Dee near Allenvale.

Adt. Ps. Ng B M P (Nh) : O. Not frequent, and decidedly local.

S. speciosa, Nutt. Showy Golden-rod. Native in Canada and U.S.A. Cultivated in gardens, and occasionally met with as an outcast or casual, e.g., in 1910, in a sandpit near Tillydrone.

[*S. canadensis*, L.] Canadian Golden-rod. Native in Canada and U.S.A. Often cultivated in gardens, from which it is at times seen outcast or escaped.

Not observed within Aberdeen.

Adt. Ps. : : : : Nh : : . By a road, a little way from houses.

Bellis perennis, L. Common Daisy. Native in pastures and on waste or bare soil; but even more plentiful as a weed of cultivation.

“Passim in agris et in pratis” (Skene). Too abundant often.

Adt. Ps. In all; plentiful.

Aster Tripolium, L. Sea Starwort. Native in the estuary of the Dee, but long extinct near Aberdeen.

“Near Donmouth, Links, 1813” (Knight). “On the Inch. Rare” (Fl. Ab.). “Formerly on the Inch” (B. G.).

I have never seen this nearer Aberdeen than the mouth of the North Esk, where it has been increasing in quantity for several years. It is very plentiful by the South Esk, near Montrose. It must have been rare by the estuary of the Dee, as no one but Dr. Dickie has recorded it from there.

Aster. Various species from N. America are cultivated in our gardens and may be observed as outcasts or escapes near Aberdeen, on refuse-heaps or by-roads. Occasionally a plant may live for a few years; but no species has gained a permanent place in our flora. The following have been observed in this neighbourhood: *A. lævis*, L. and *A. novi-belgii*, L.

Erigeron canadensis, L. Canadian Flea-bane. Rare casual. Native in N. America. It has become a very troublesome weed of many gardens near London.

I found one or two examples on town-refuse on the old bed of the Dee, in 1893. Mr. Cobban showed me one found by him in 1900 by the Paper Mill at Woodside.

Adt. Ps. : : : : Nh : : . Rare.

Filago germanica, L. Common filago, or "Herba impia." Native. Rare.

"In arenosis siccis" (Skene). "Stocket, not frequent" (Knight). "Tops of walls at Stocket and Raeden" (Dickie hb., 1838). "At Rubislaw" (Cow).

It must now be very rare if not extinct, within Aberdeen.

Adt. Ps. : : : : : O. Local and rare. It is plentiful about St. Cyrus, in S. Kincardineshire.

F. minima, L. Least Cudweed. Native on dry soils; locally plentiful.

"Passim in sterilioribus et ad vias" (Skene). "Rubislaw" (Harvey). "Wall-tops near Forester-hill and Bellfield, and near St. Machar's Church" (Cow). "Old Aberdeen Links, 1840" (Laing hb.).

On tops of earthen walls, old quarry-heaps, by-roads, and other dry, bare soils; local and less frequent in Aberdeen than in the country districts around the city.

Adt. Ps. Ng. : : P Nh D O. Local; in some places abundant.

Antennaria dioica, R. Br. Mountain Everlasting. Native on moor and in poorer pastures; now rare in Aberdeen; probably not rare formerly.

"Passim in ericetis" (Skene). "Stocket Moor" (Fl. Ab.).

Still occasionally to be found on quarry-heaps, and on the vestiges of the moors that formerly covered so much of Aberdeen.

Adt. Ps. Ng B M P Nh : O. Local; but common in a few places.

Anaphalis margaritacea, Benth. et Hook. f. Garden Everlasting. Native in N. America; a favourite in old gardens, and occasionally on rubbish, or an outcast.

"Roadside at Broomhill, 1834" (Dickie hb.).

Sandpit near Tillydrone.

Adt. Ps. : B : : : : . By roadside.

Gnaphalium uliginosum, L. Marsh Cudweed. Native in moist hollows, etc.

"Crescit in humidiusculis" (Skene). "Ditches at Rubislaw, 1833" (Dickie hb.). "Dam of Gilcomston; on wet waste places between Hilton and Auchmill; on wet pastures by the Firhill-well; on the Links in moist places, etc." (Cow).

I have seen this in Aberdeen only in ditches and on damp soil in the Rubislaw district, where it seems to be very local, and sparingly by the Don near the Cruives in 1911. It appears to be much less common in the parish than it was even about 1830.

Adt. Ps. In all; locally plentiful in ditches and wet hollows.

G. sylvaticum, L. Highland Cudweed. Native in poor pastures and on dry soils.

I have seen it on quarry-refuse, by-roads, and in poor fields in Rubislaw, the Stocket, near Hilton, etc.; but it is becoming less common near the city, where it must have been as frequent in the poorer pastures as it still is in all the adjacent parishes in suitable habitats.

Adt. Ps. In all; widely distributed; in some fields common.

Inula Helenium, L. Elecampane. A very rare alien; native in S. Britain.

"Den of Rubislaw; on a waste place, Deeside, above Craiglug; on Donside, above the Bridge" (Cow).

There is no other note of *I. Helenium* from this vicinity; and there is little doubt that Cow had mistaken for it the Leopard's-bane.

Helianthus tuberosus, L. Jerusalem Artichoke. Native in N. America.

Long cultivated, for its tubers, in gardens; often appearing among town-refuse on Old Aberdeen Links and elsewhere; continuing sometimes for several years, and even spreading for a time; but not permanently.

H. argyrophyllus, Torr. et Gray and

H. decapetalus, L.

Natives in N. America. I found both on town-refuse, in 1905, on Old Aberdeen Links. They were evident casuals; perhaps sprung from seeds used as bird food.

H. Maximilianii, Schrad. Native of N. America.

In Tillydrone sandpit in 1911, possibly an outcast.

Ambrosia artemisiæfolia, L. Casual. Native in N. America.

Several plants found by me on town-refuse, in 1893, on the old bed of the Dee, and in 1905 on and near Old Aberdeen Links ; perhaps sprung from grain-siftings.

A. trifida, L. Casual. Native in N. America.

A plant was found by me on town-refuse near the gasometer in September, 1917 ; and a few days later a plant of var. *integrifolia*, in flower and fruit, was found on refuse in Ferryhill.

Xanthium spinosum, L. Casual. Widespread in warm, temperate, and tropical countries ; perhaps native in S. Europe.

Several were found by me on the old bed of the Dee in 1893, and one plant, in October, 1916, in a sandpit north of the White bridge, Woodside.

[*Bidens cernua*, L.] Nodding Bur-marigold.

" Moss of Culter " (Beattie).

This is probably a correct record, as the species was native, though very rare, and probably now extinct in a locality only a few miles distant.

B. tripartita, L. Trifid Bur-marigold. Rare casual in Aberdeen, though native in Scotland, possibly so at a few miles distance.

A few plants were found by me, in 1893, on the old bed of the Dee ; but they left no progeny.

B. laevis, B.S.P. (*B. chrysanthemoides*, Michx.). Casual on refuse. Native in N. America.

A few plants found by me, in 1893, on the old bed of the Dee were perhaps sprung from grain-siftings.

Galinsoga parviflora, Cav. Native in Tropical America ; very widely dispersed as a weed over temperate as well as warm regions ; troublesome in parts of England. A very rare casual in Aberdeen.

On town-refuse, in 1893, on the old bed of the Dee.

Schkuhria isopappa, Benth. Native of the Equatorial Andes in S. America. A very rare casual on town-refuse in Aberdeen.

I found two examples, in September, 1907, on Old Aberdeen Links, near E. Seaton.

Achillea Millefolium, L. Common Yarrow or Milfoil. Native. " Passim in pratis " (Skene).

Too common on the Links, in pastures, by roads, etc., to call

for records or detailed localities. The flowers vary in colour from white to deep red. On the sandhills a dwarf form is common.

Adt. Ps. In all; very common.

A. crithmifolia, W.K. Native in S. Europe; rare casual on town-refuse.

Found by me, in 1893, on the old bed of the Dee.

A. Ptarmica, L. Sneezewort Yarrow. Native.

"Passim inter segetes et in incultis" (Skene). "Pitmuckston bank, not uncommon" (Knight).

This must have been plentiful in Aberdeen formerly; but it is not so now, though still rather widely dispersed near ditches and streams, and on waste ground; by the Dee, in Rubislaw, near Hilton, etc.

Adt. Ps. In all; frequent in suitable habitats.

Anthemis tinctoria, L. Native in Central and S. Europe. Casual in Aberdeen, usually on town-refuse.

A few plants were found by me on rubbish on Old Aberdeen Links in 1875 and occasionally since; and I have seen it also from waste ground in Rubislaw. In each case the plants had evidently sprung from seeds, possibly from grain-siftings, or from a seedsman's shop.

A. mixta, L. Rare casual, on refuse. Native in W. Mediterranean region.

A few examples were found by me, in 1905, on Old Aberdeen Links, perhaps from sweepings of a shop.

A. Cotula, L. Stinking Chamomile. Casual, on rubbish. Known only as a weed of cultivation; but may be native in S. Europe.

"Broadford, Beattie" (Knight).

Several examples found by me, in 1899, on the old bed of the Dee, and in 1903 on Old Aberdeen Links. It was not uncommon in 1909 on waste ground at Berryden, and in 1910 by the railway south of Don Street Station, on rubbish.

Adt. Ps. Ng : : P Nh : : . Casual, Nigg and near Culter; rare.

A. arvensis, L. Corn Chamomile. Scarcely more than a casual, though of common occurrence on town-refuse, and an occasional weed among corn and other crops. Native in S. Europe;

very widely dispersed as a weed of cultivation, in a form not quite like the wild plant.

“Occasional in fields near Aberdeen, Professor Macgillivray” (B. G.). “Ferryhill, 1860” (Ogston hb.).

I have seen it in fields in Rubislaw, in 1884, the Stocket, and Old Aberdeen, and on town-refuse plentifully on the old bed of the Dee, from 1892 onwards, and on Old Aberdeen Links, probably brought in grain-siftings.

Adt. Ps. Ng B : P Nh : O. As a weed in fields and by the Dee on shingle ; only a rare casual.

A. nobilis, L. Garden Chamomile. Cultivated in cottage gardens, more often formerly than now, and met with as an occasional outcast or escape ; but rare near Aberdeen. Native in W. Europe.

Anacyclus radiatus, Lois. Casual on town-refuse. Native of S. Europe.

Found by me, in 1905, on Old Aberdeen Links, probably brought with grain.

Chrysanthemum segetum, L. Corn Marigold. Casual within Aberdeen, probably from gardens frequently ; but a very common colonist or weed of field-crops in many parts of the adjacent counties. Native in parts of the Mediterranean area ; widely spread as a colonist over the world.

“Passim inter segetes” (Skene). “Among corn, frequent” (Knight).

This is not mentioned as found within the parish of Aberdeen in any record that I have found ; but I have met with it as a weed in gardens in Old Aberdeen and in Rubislaw, and as a frequent casual on town refuse, on the old bed of the Dee, on Old Aberdeen Links, etc.

Adt. Ps. In all ; a field-weed, especially common a few miles up the valley of the Dee and in some parts of N.E. Aberdeenshire.

C. Myconis, L. Casual on town-refuse. Native in Mediterranean area.

A few examples grew in 1903 on Old Aberdeen Links.

Adt. Ps. Ng : : : : . A large plant by a railway siding in 1910.

C. Leucanthemum, L. Great White Ox-eye. Native ; not frequent in Aberdeen.

"On the brae opposite the Printfield; at Hilton; on pastures at Middlefield" (Cow).

It may be found dispersed in pastures and by railways in most parts of the parish, but is not common here.

Adt. Ps. In all; not common near Aberdeen, becoming abundant along the railways and in many fields in various parts of the country.

C. coronatum, L. Casual on town-refuse. Native of S. Europe.

A few examples on the old bed of the Dee in 1893, and on Old Aberdeen Links, in 1908. The seeds may have come from grain-siftings, or they may have been refuse from garden-seeds, as it is grown in gardens.

C. Parthenium, L. Feverfew; locally called Feather-fowlie. Denizen on waste ground, old walls, etc. Native in Central and S.E. Europe; formerly cultivated in most gardens for medicinal uses.

"Apud nos plerumque in hortis" (Skene). "Bridge of Don" (Beattie). "On a wall-top, Union Place; on waste places at Torry" (Cow). "Bank by King Street near the Spital Churchyard" (P. M.).

It still grows on the Old Bridge of Don and near it, as also on dry banks and on town-refuse in various parts of the parish; but it is not so common here as formerly.

Adt. Ps. : B (M) P Nh D O. A denizen here and there; not common.

Matricaria inodora, L. Scentless May-weed; locally called Horse-gowans. Probably native on rocky sea-coast; but may be a denizen, occurring chiefly as a weed of cultivated ground and of waste places.

"Perfrequens in arvis" (Skene).

Too common to require detailed records or localities. Its dispersal is much aided by man's unintentional agency.

Adt. Ps. In all; abundant.

M. maritima, L. Sea-side May-weed. Native on rocky coasts.

"On the sea-coast along the Girdleness" (Cow).

On rocks near Torry.

Adt. Ps. Ng B : : : . Plentiful on rocky coast.

M. Chamomilla, L. Wild Chamomile. A rather rare casual. Widely dispersed as a weed of cultivation; but appears native in N. Italy.

"In corn-fields and waste grounds; in a field at the Hardgate; in cornfields at Kemhill; in fields at Bridge of Dee, etc." (Cow).

Probably Cow's plant was *Anthemis arvensis*, which he does not mention. I have found *M. Chamomilla* on town-refuse, on the old bed of the Dee in 1893, and on Old Aberdeen Links in subsequent years, on the railway near Don Street Station in 1910; and beside the new road from School Road to the Links in 1914.

M. suaveolens, Buchenau (*M. discoidea*, DC.). Rayless Chamomile. Native in N.W. America and N.E. Asia; but widely dispersed as a weed of cultivation, and a well-established denizen on the N.W. coasts of Europe, and in the neighbourhood of London and elsewhere in Britain.

It was first observed in N.E. Scotland by me, rather over twenty years ago, in a limited area near Rosehearty, where boats were beached. On revisiting the district in 1900, I found it had become very common in Rosehearty, and had spread to the neighbouring farms, and along roads for several miles, as far as Gamrie, New Pitsligo, and Fraserburgh; and I also found it on boat-shores at Inveralloch and at Boddam, about the same time. Its distribution thus suggested that it had been brought by boats from elsewhere, possibly from coasts of Continental Europe, where it has for a number of years been plentiful. I had been expecting it to appear in Aberdeen; but found no trace of it here until July, 1907, when one or two plants grew on town-refuse on the Links near East Seaton. They were destroyed before producing seed; but in 1908 a few more occurred near the same place, and a score or two also appeared on the football field east of the Broadhill and seeded freely. It reappeared in these places in 1909, and in September, 1909, I found one plant seeding freely by the railway N. of Kittybrewster. In September, 1911, I saw forty or fifty flowering and seeding plants by the gutter in Ardarroch Road. No doubt in a few years this plant will be a common weed near Aberdeen, as a permanent denizen. I had not seen it in any adjacent parish until August, 1909, when I found it in fair quantity on waste ground in the fishing village of Portlethen, in B., sparingly near Bucksburn Station in 1911, and a few plants by roads in Nigg in August, 1913.

Tanacetum vulgare, L. Common Tansy. Native in S. Britain; very often cultivated in gardens formerly, and still frequent in cottage garden. A denizen in many localities in the counties around Aberdeen; it is at most a subdenizen in the parish, as an escape or outcast from a garden.

"In rupibus ad pontem Don" (Skene). This record may refer to the north bank of the river. "Rubislaw; very doubtful if wild" (Knight).

I have seen one or two small clumps in the district of Rubislaw, where it is a subdenizen.

Adt. Ps. : : : P Nh D O. Only in a few places; a denizen.

Artemisia Absinthium, L. Common Wormwood. Native in Central Europe, and probably in S. England. A denizen northwards, from former cultivation as of medicinal value.

This grows on ground by the riverside road, west of the Suspension Bridge over the Dee, as a subdenizen. I have found it also, as a casual, on the old bed of the Dee in 1893, and on Old Aberdeen Links in 1907.

A. vulgaris, L. Mugwort; locally Muggart. Possibly native on waste places; but probably a denizen from former cultivation, for medicinal uses. Probably native in N. Europe, including most of Britain.

"Frequent" (Knight). "Border of a field near Gallowgate; on roadside west St. Machar's Kirk; sides of fields at Torry" (Cow). "Frequent" (B. G.).

Very local within the parish, this appears to have become less frequent than formerly. It is abundant on parts of the Market-stance at Old Aberdeen; and occasionally appears as a casual on town-refuse. It rarely appears away from houses or roads in this part of Scotland, and is especially abundant near fishing villages, its distribution suggesting that it is probably of alien origin.

Adt. Ps. Ng B; P Nh D O. Not frequent.

A. arenaria, DC. Casual on town-refuse. Native in S.E. Europe.

Two or three on the old bed of the Dee in 1893, probably from siftings of grain.

[*A. maritima*, L.] Sea Mugwort or Sea Wormwood. Native on coast rocks.

Adt. Ps. Ng : : : : : Only near Altens. Beyond our

limits it grows on a rock at Muchalls, and in greater plenty on the coast near Mathers in St. Cyrus and on a cliff in Slains.

[*A. Abrotanum*, L. Southernwood; Appleringie.] Native in S. Europe; long a favourite in gardens in Scotland.

Adt. Ps. Found by me growing in sandy beach on north side of Donmouth, no doubt from some garden up-river.

Tussilago Farfara, L. Coltsfoot or Tussilago. Native in damp soils; but largely dispersed as a weed in agricultural ground and by streams; most difficult to eradicate owing to the depth to which it burrows.

Too plentiful everywhere to require detailed records or localities.

Adt. Ps. In all; too abundant.

Petasites fragrans, Presl. Winter Heliotrope. Native in S. Europe.

Subdenizen as a garden weed in Old Aberdeen and Ferryhill.

Adt. Ps. : : : P : : O. Rare casual or weed in or near gardens.

P. albus, Gaertn. White Butterbur. Denizen; locally abundant in damp soil. Native in E. Europe.

"Rubislaw Den" (Knight and Dickie hb., as *P. vulgaris*). Recorded as *Tussilago Petasites*, by Cow from "the banks of a small rivulet near Foresterhill" and as *P. vulgaris*, by Dickie and P. M., both of whom say it is "frequent." Recorded as *P. albus*, Gaertn. in 1867 (Journ. Bot., v., 182) by Robert Hunter, who had then identified a specimen gathered by him on 18 April, 1841, near Woodhill. "Rubislaw (J. S. Ogilvie)" J. T. Syme (in Eng. Bot., ed. 3, v., 118).

Introduced as an ornamental plant by streams, and occasionally thrown on waste ground, this has established itself, and has become abundant in a few localities, such as Rubislaw Den, and by a ditch along a road at Woodhill.

Adt. Ps. : B M P Nh : O. A denizen; abundant in a few localities.

P. hybridus, Gaertn. (*P. vulgaris*, Moench). Common Butterbur. Native by streams in the counties round Aberdeen, and abundant in a few localities in N. Aberdeenshire and Banffshire; but rare close to the city. A few plants found in June, 1910, on an island at the Cruives near Gordon's Mills.

Adt. Ps. : B : : : : . By the burn on the S. edge of Banchory, near the sea.

Doronicum Pardalianches, L. Leopard's-bane. A denizen, very local; but common in a few places. Native of Europe, and admitted as native in S. Britain; often cultivated in gardens, and easily establishing itself in suitable habitats, especially under slight shade.

"Rubislaw Den and south bank of Don above the Old Bridge, 1836" (Dickie hb.).

I have found it in the Den of Rubislaw, but have not seen it elsewhere within the parish.

Adt. Ps. : : : P : D O. Very local denizen.

Calendula officinalis, L. Common Marigold. Casual on town-refuse. Native in the Mediterranean area. Much cultivated in gardens here.

Frequent on waste soil, e.g., on old bed of Dee, on Old Aberdeen Links, at Ferryhill, etc.

***Senecio vulgaris*, L.** Common Groundsel.

Too plentiful to require detailed records or localities; a weed of cultivated soils and of waste ground liable to have its surface disturbed and kept bare. Largely dependent for its abundance on cultivation of the soil; possibly native, though the distribution suggests an introduction with the seeds of useful plants long ago.

Adt. Ps. In all; very common.

S. ægyptius, L. (*S. arabicus*, L.). Rare casual on town-refuse. Native in the eastern Mediterranean area.

A few plants were found by me on Old Aberdeen Links, in 1907.

***S. sylvaticus*, L.** Mountain Groundsel. Native on waste ground, especially dry and poor soils.

"Crescit e muro inter Old Town et Links" (Skene). "In old quarries at Rubislaw; at Hilton quarries; on Donside, below the bridge, abundant, etc." (Cow, as *S. viscosus*).

It still grows in these localities, and among whins on the Links; but is becoming less common in Aberdeen.

Adt. Ps. In all; abundant in some places, especially among whins.

S. viscosus, L. Stinking groundsel. A scarce casual near Aberdeen, usually on town-refuse. Native in Europe, and possibly on parts of the east coast of Britain.

First observed locally (Cow's record being in error) in 1893, on

old bed of the Dee; and also on Old Aberdeen Links in 1903 and subsequently.

Adt. Ps. Ng : : : : D : . A few on rubbish near Harper's Works in Nigg and near Dyce Railway Station. It is rather common on the beach at Portsoy in Banffshire, probably as a denizen.

S. Jacobaea, *L.* Common Ragwort; locally called Wild Tansy. Probably native; but certainly much aided in its dispersal by man, and by domestic animals, especially sheep; possibly introduced as a weed of agriculture, and spread to waste ground.

"Passim in arvis" (Skene). "On the Broadhill and Links; in the Den of Rubislaw" (Cow).

Frequent on the coast dunes, also by-roads, and in a few fields of artificial pasture, where it is often more abundant than on waste ground.

Adt. Ps. In all; often too abundant.

S. aquaticus, *Huds.* Water Ragwort. Native by streams and in wet soil.

"On wet places and meadows; in the Den of Rubislaw; on the south side of the Don below the new bridge, and at the Printfield" (Cow).

Though this Ragwort must have been common and generally dispersed in Aberdeen before drainage of the surface, it is now not common. It may still be found sparingly by the rivers and in Rubislaw Den, as well as in old quarries.

S. saracenicus, *L.* Broad-leaved Ragwort. Alien. Native in Continental Europe, and admitted as native in S. Britain. Cultivated formerly as a veterinary remedy.

"On moist meadows not common; in the Den of Rubislaw; on a bank north from the Gallowhill" (Cow). "Den of Rubislaw, late A. K. Clark" (Fl. Ab.).

Evidently not seen growing within Aberdeen by Dickie; nor had I seen it in the parish until a plant appeared on waste ground in Rubislaw.

Adt. Ps. : : (M) P Nh : : . A subdenizen; local and scarce.

[**Carlina vulgaris**, *L.* Carlina Thistle.] Native on dry banks on the coast; local and rare.

Not recorded from between the Dee and the Ythan.

Adt. Ps. : B : : : : . "Occasionally on the coast between

Stonehaven and Portlethen " (B. G.). I have never seen it north of Muchalls.

Arctium Lappa, L. Common Burdock. Alien, and little more than a casual.

"Ad aggeres et vias" (Skene). "Rubislaw" (Knight). "On waste places and by waysides, not common about the city; about King's College; on the road going to the Links from the Bridge of Don; on waste places at Torry" (Cow). "Near the Old Town" (Fl. Ab.). "About Footdee" (B. G.).

It is not possible to determine which of the forms included under the aggregate are denoted by the above records; but none can be looked on as naturalised in Aberdeen, being very uncertain in recurrence in any locality, and rarer than formerly. Despite the facility with which burdock fruits are scattered by clinging to bodies of animals or to clothes of passers-by, burdocks are seldom seen here. They are far more frequent in several of the fishing villages in Buchan, apparently introduced by the boats.

Adt. Ps. The aggregate *A. Lappa* has been found in Ng : M P : D O, but is a scarce plant, uncertain in its continuance, and little more than casual.

Of the segregates I have from Aberdeen :—

A. minus, Bernh.

"Rubislaw Den" (Dickie hb.).

It was found by me in the Rubislaw district once or twice in by-roads, on the old bed of the Dee in 1893, and near Old Aberdeen in 1910; but it is scarce locally. I have found it also near Bucksburn.

A. intermedium, Lange (*A. pubens*, Bab.).

Two or three examples grew on the old bed of the Dee in 1898. It grows at Cove in Nigg.

Carduus pycnocephalus, L. Slender-headed Thistle. A rare casual in Aberdeen. Native of S. and W. Europe, including various parts of Britain.

"At Torry, sparingly" (Cow).

There is no other record of this as found in Aberdeen; but, although Cow was often inaccurate in the determination of critical species, I think this record was probably correct, as this thistle grows near fishing stations both south and north of Aberdeen, though nowhere abundant, and probably of alien origin in N.E. Scotland.

C. crispus, L. Welled Thistle. By-roads and on waste ground, probably a denizen. Native in S.E. Europe, and possibly in W. Europe, though its distribution there suggests alien origin.

"Ad vias inter segetes" (Skene). "Back of the Gallowgate, and road to Broadford" (Beattie). "Broadford" (Knight). "Near Old Aberdeen, 1819" (W. M. hb.). "By the sides of King Street" (Harvey). "Rubislaw Quarry, 1834" (Dickie hb.). "On waste places and waysides; on the side of North Street, towards the north-west end; on the Castle-hill; in the Old-town Churchyard; frequent about Old-town" (Cow as *C. acanthoides*). "On the Inch, at west end" (Fl. Ab.). "Near Brick Kilns, 1845" (Polson hb.).

This plant is still moderately common in fields near Tillydrone in Old Aberdeen; and it occasionally appears near King Street, north from the Barracks; but it is now very rare, if not extinct, in the other localities named above.

Adt. Ps. : : : Nh (D) O. Rare, and little more than a casual, except near Bucksburn.

Cnicus lanceolatus, Willd. Spear Thistle. Native; helped in its dispersal by man, and thus become more common near houses, by-roads, etc.

"Passim ad vias. Frequentissime ad semitas et agrorum margines" (Skene).

Too frequent to call for other records or for localities.

Adt. Ps. In all; too prevalent.

C. eriophorus, Roth. Woolly-headed Thistle. Native in Europe, including England. Often cultivated in gardens in N.E. Scotland; hence an occasional outcast or escape.

"Den of Rubislaw, but introduced" (Knight and Harvey).

C. palustris, Willd. Marsh Thistle. Native in wet places.

"In ditches west the Broadhill; in the Den of Rubislaw" (Cow).

This must have been more plentiful formerly in marshes; but it is now restricted to the banks of the rivers and smaller streams, to damp hollows about quarries, and the few other remaining damp soils.

Adt. Ps. In all; generally distributed, though rarely abundant. A white-flowered variety is not rare.

[**C. heterophyllus**, Willd. Plume Thistle or Melancholy Thistle.] Native in the valley of the Dee, and elsewhere in the interior of the counties near Aberdeen.

There is no record of its having been observed wild in Aberdeen, though it might be expected on the banks of the Dee, or on the Inches while they existed in the estuary.

Adt. Ps. Ng B M P Nh : : . By the Dee; more frequent west of Culter.

C. arvensis, *Hoffm.* Creeping or Field Thistle. Native. Common on waste ground, and often still more plentiful in agricultural ground, where it becomes a most troublesome weed.

"Nimis frequens inter segetes et ad vias" (Skene).

Too frequent to require other records to be given. It varies considerably in armature and size of flowerheads; the varieties *mitis*, Koch and *horridus*, Wimm. et Grab. being common.

Var. *setosus*, C. A. Mey. This form is generally regarded as alien in Britain, and doubtfully native except in S. Europe.

In 1890 I found a single plant of it by a field north of East Seaton; but no more appeared there. In 1903 it was rather plentiful on cultivated soil on a slope south of Whinhill road in Ferryhill; but it has been rather scarce there in subsequent years. In 1908, several plants appeared on the slope of an embankment of the drive along the coast north of the Broadhill and are spreading there; and it has also appeared in Rubislaw in 1909, and plentifully on old garden ground near Morningfield, and on rubbish by the railway near Don Street Station in 1910. In each case the variety has shown itself where it certainly did not exist a year or two previously. One is thus forced to conclude that it was recently introduced in all these localities, though only in one or two of them was the probable method of immigration evident.

Adt. Ps. In all. Var. *setosus* on a rubbish heap at Mugiemoss, in Nh, in 1917.

Onopordon Acanthium, L. Common Cotton Thistle. Native probably in S. Europe; but widely dispersed by cultivation in gardens and as a weed along roads, on waste ground, etc. A very rare casual here.

"In the Den of Rubislaw, rare and scarcely indigenous" (Cow).

On waste ground near East Seaton in 1909.

Silybum Marianum, Gaertn. Milk Thistle. Native of the Mediterranean area; often cultivated in gardens formerly, and out-cast or escaped.

"Passim ad vias. Satis frequens ad scordas" (Skene). "Foot-

dee" (Beattie). "Footdee" (Knight). "Below Bonaccord Terrace, 1830, and behind the Boathouse at Kittybrewster, 1835" (Dickie hb., and Fl. Ab.).

I have seen it, as a rare casual, on town-refuse near Old Aberdeen, on Old Aberdeen Links, and at Berryden.

Adt. Ps. : : : : Nh (D) : . A rare casual; but in fair quantity on waste ground near Bucksburn Station in October, 1915.

Carthamus tinctorius, L. Safflower. A casual on town-refuse; first noticed in 1905, but not uncommon recently. Native of and cultivated in the Mediterranean area.

On Old Aberdeen Links, and once, in 1907, near Woodhill, by a road.

Adt. Ps. Ng : : P : : : .

***Centaurea nigra*, L.** Black Knapweed. Native; common on banks and waste ground, and in natural pastures.

"Old Aberdeen Links" (Skene). "On Donside, above and below the bridge; on Deeside above Craiglug" (Cow).

It still grows in these localities, as well as on quarry-heaps and other waste ground in Aberdeen; where its range must have been much limited by agriculture.

Adt. Ps. In all; plentiful in many places.

A variety with conspicuous long ray-flowers is very common in the basin of the Dee from around Culter westwards and in Maryculter; but it does not seem to occur within several miles of Aberdeen.

C. Scabiosa, L. Great Knapweed. Native in other parts of Scotland; not in N.E. Scotland.

I have seen a specimen gathered in 1860 near Rubislaw, but have no other evidence of its occurrence here. It is probable that the plant had been a casual.

C. Cyanus, L. Corn Bluebottle. Colonist among cereals and tares usually; or as a rare casual on refuse-heaps, etc. Probably native in S. Europe, and dispersed as a weed of cultivation elsewhere.

"Vulgatiss. in cultis." (Skene). "In cornfields, abundant; at Kemhill; in fields at the North-head brae, etc." (Cow). "Frequent in fields about Aberdeen" (Knight and Fl. Ab.).

This is not now frequent about Aberdeen, although a few examples may still be found every year. It appears not even to be

established securely as a colonist, but to be dependent for its continuance on renewal by seed brought in with agricultural seeds. Its diminished frequency may probably be due to wheat having been given up as a field-crop since 1860, and perhaps also to agricultural seeds being now better cleaned.

Adt. Ps. Ng : : P : : (O). Not a common species here now.

C. Calcitrapa, L. Common Star-thistle. A rare casual on town-refuse. Native in the Mediterranean area; but widely dispersed as a weed.

Several were found by me, in 1893 and 1894, on the old bed of the Dee, but they scarcely appeared to ripen seed. Probably from siftings.

C. melitensis, L. Malta Star-thistle. A rare casual from S. Europe.

In 1907 I found several on Old Aberdeen Links; probably thrown out with grain-siftings.

Cichorium Intybus, L. Chicory. Casual on town-refuse, and sometimes in pastures as a casual or sown. Native in S.E. Europe probably, and widely dispersed by man.

"Borders of fields and waste places, rare about Aberdeen" (Knight and Cow).

I have seen this on the old bed of the Dee, on Old Aberdeen Links, near Old Aberdeen, etc.; but it is not frequent near Aberdeen. It is occasionally sown in grass fields.

Adt. Ps. : : : P Nh D O. A scarce casual on waste ground, and in grass fields, in which it is more often sown than formerly.

Arnoseris minima, Link (A. pusilla, Gaertn.). Dwarf Nipplewort. Rare casual near Aberdeen. Native in Central Europe, dispersed as a weed.

"Passim inter segetes" (Skene).

Mr. James Duncan some years ago gave me a specimen found by him in a sand-pit near the Gallowhill.

Lapsana communis, L. Common Nipplewort. Possibly native, but probably a denizen in N.E. Scotland.

"Ubique ad vias in ruderalis et cultis" (Skene). "Rubislaw, etc." (Knight, etc.).

Very general in both cultivated and waste ground, and often plentiful; but its habitats suggest an alien origin in the distant past.

Adt. Ps. In all; locally frequent.

Rhagadiolus edulis, Gaertn.

R. Hedypnois, Fisch.

Rare casuals on town-refuse. Natives in the Mediterranean area.

Both appeared in 1905 on material spread alongside the road along the coast to the north of the Broadhill, possibly from grain-siftings.

Picris echinoides, L. Bristly Ox-tongue. A rare casual on rubbish. Native in S. and Central Europe, including England.

Found by Thomas Edward in 1883 near Aberdeen Railway Station, and by myself in 1905 on the Links, near the last two species.

P. hieracioides, L. Hawkweed Ox-tongue. Native in S. Scotland and England.

"On roadsides and the borders of fields; among the quarries at Hilton; in fields at Dancing Cairn; on the braes of Pitfodels, etc." (Cow).

Of this species I have never seen an example in or from this part of Scotland; nor is there any confirmation of Cow's record. He had evidently mis-named some other species, probably the hairy variety of *Leontodon autumnalis*.

Crepis virens, L. Smooth Hawk's-beard. Native in natural pastures; but aided in its dispersal by agriculture, and more plentiful in cultivated soil.

"In meadows, pastures, and upon the roofs of thatched cottages; on sandy hills south of the Don; on the roadside at Bellfield; at Hilton and the Socket-head, etc." (Cow, as *C. tectorum*).

Said in B. G. to be "a rare plant in this district;" but it is both very general and common, and varies greatly in size and aspect.

Adt. Ps. In all; common.

[*C. biennis*, L.]

One plant, in fine condition, was found in a grass field in Banchory opposite Cults by Walter Ritchie (an advanced student), and shown by him to me for identification in fresh state, 23 June, 1913.

C. tectorum, L. A very rare casual. Native in S. and Central Europe; rather widely dispersed as a weed of cultivation.

In the inclosure around the old powder magazine on the Links, N.E. from the Broadhill, I found a large plant in September, 1905.

C. paludosa, *Moench*. Marsh Hawk's-beard. Native by streams and in wet pastures.

"Rubislaw Den, 1835" (Knight, and Dickie hb.). "On the banks of rivers and in wet places, not uncommon; on Donside, above the bridge, abundant; in the Den of Rubislaw, on the banks of the stream" (Cow, under *Hieracium*).

It is still frequent along the Don, and less commonly in Rubislaw Den and a few other places; but its habitats have been much reduced by drainage.

Adt. Ps. In all; common in suitable localities.

Hieracium Pilosella, *L.* Mouse-ear Hawkweed. Native on dry soils.

"Ferryhill" (Knight). "Common; on dry hills on the Links and on the Broadhill; at Hilton and Rubislaw; on a dry bank at North-head braes, etc." (Cow).

On dry banks, quarry-refuse, walls, etc., in many places, covering surfaces of several square feet or even yards at times.

Adt. Ps. In all; abundant in suitable habitats.

H. aurantiacum, *L.* Orange Hawkweed. Native in alpine Europe; long a favourite in cottage gardens, from which it readily spreads as an outcast or escape; but not at present known to me as established in Aberdeen.

"In the Den of Rubislaw, rare" (Cow). "In wood at the back of St. Machar's Church, Old Aberdeen, 1845" (Polson hb.). "In several localities, but always the outcast of a garden" (P. M.)

Adt. Ps. : : : Nh D O. Rare near Aberdeen; but naturalised in a number of places in the neighbouring counties, e.g., by the railway near Parkhill Station, and Persley (rare in 1910).

Hypochæris radicata, *L.* Long rooted Cat's-ear. Native.

"Ubique in agris et pascuis et ad vias" (Skene).

Very frequent in natural pastures, such as on the Links, and often not less so as a weed in cultivated ground, and on waste places.

Adt. Ps. In all; very common.

Thrinchia nudicaulis, Britten et Rendle. Hairy Hawkbit. Native in most parts of Britain; but only a casual here.

Found on town-refuse in 1894 on the old bed of the Dee, and in 1905 on the Links north of the Bathing Station, near the new road.

Adt. Ps. : : : : (O). "In a plantation west from Scotston Office-house, 1863" (John Sim).

Leontodon autumnalis, *L.* Autumnal Hawkbit. Native.

"Frequens in collibus arenosis maritimis" (Skene).

Still common in Aberdeen on the sand-dunes, as well as in natural pastures, on quarry-refuse and by-roads in other parts of the parish; less plentiful as a weed of cultivated soil. The glabrous variety appears to be the more frequent; but the large coarse hairy variety (*sordida*, Bab.) is not scarce in rougher pastures.

Adt. Ps. In all; both varieties are common.

L. hispidus, *Cow* an *L.*? Rough Hawkbit.

"In meadows and pastures; on the Links and Broadhill; on Donside; at Hilton, Dancing-Cairn, etc." (Cow, as *Apargia hispida*).

As there is no other record of *L. hispidus* having been found here, there is little doubt that Cow had mistaken for it a form of *L. autumnalis*.

Taraxacum officinale, *Weber*. Dandelion. Native.

"In pratis et pascuis, passim" (Skene).

Plentiful in short pasture on waste ground and by-roads, and as a weed of cultivated ground. It varies greatly in size, cutting of the leaves, etc. Mr. J. M. Hector, following the recent observations of Scandinavian botanists, has found that seeds may be produced and ripened without pollination.

Var. **Dens-leonis** is our common form.

Var. **erythrospermum** (*Andrz.*), and var. **lævigatum** (*Poir.*), on the sandhills, rare elsewhere.

Var. **palustre** (*DC.*), grew on wet parts of Stocket Moor, and no doubt in the other marshes of Aberdeen formerly; but appears to be nearly extinct within the parish, as I have seen it only on a damp bank between Woodside and the Don.

Adt. Ps. In all abundantly as var. *Dens-leonis*; var. *palustre* frequent in swamps on moors. The other varieties grow in a few places, but their distribution has not been sufficiently noted. Several of the forms regarded as species by Dahlstedt and other recent students of the genus will no doubt be detected when similar study is directed to them in Scotland to that given in Scandinavia.

Lactuca Scariola, L. Prickly Lettuce. A very rare casual. Native, but local and scarce, in England.

A large plant grew, among other casuals, on town-refuse, by the side of the Football ground, Old Aberdeen Links, near E. Seaton, in 1909, flowering freely, but not ripening fruits.

[*L. muralis* (Fresen). Ivy-leaved Lettuce.] A very local denizen. Native in Europe, including England and probably S. Scotland.

Adt. Ps. : B : : : : . On the wall of the churchyard of Banchory, and along a hedge by the road near the churchyard; common.

Sonchus oleraceus, L. Common Sow-thistle. Denizen.

"In cultis" (Skene). "On waste places and fields, not uncommon" (Cow). "Common" (B. G.).

Under *S. oleraceus* in these records are included two distinct plants, both common in this part of Scotland, on waste ground, near houses, on old walls, and as weeds of cultivated ground, their distribution suggesting their alien origin. They are:—

S. oleraceus, L. Segregate. Smooth Sow-thistle.

S. asper, Hill. Prickly Sow-thistle, the more common of the two. To this Skene's description seems to point. Both forms show great diversity in the sizes and forms of the leaves, which may vary from entire to deeply lobed.

Adt. Ps. In all; both species are common in habitats as described.

S. arvensis, L. Field Sow-thistle. Perhaps only a denizen in cultivated soils; but appears to be native on rocky coasts as in Kincardineshire; favoured in dispersal by agriculture.

"In cultis et inter segetes" (Skene). "In a field at Rubislaw; on the Inches; among stones opposite the New pier at Torry" (Cow).

In a few places only in Aberdeen, e.g., on the Market Stance in Old Aberdeen, on refuse on Old Aberdeen Links, by the Dee east of Torry, etc.

Adt. Ps. In all; locally not uncommon.

Var. *glabrescens*, Hall.

On a refuse-heap near gardens below the Old Bridge of Don in September, 1914.

Tragopogon pratensis, L. Yellow Goat's-beard or Go-to-bed-at-noon. Native; not common.

"Links, Aberdeen" (Beattie and Harvey). "Sandy Bents" (Knight and Dickie hb.). "East from Broadhill; south bank of the Canal, at east end of the bridge at Nelson Street" (Fl. Ab.).

I have seen it in all these localities, and also by Linksfeld Road, in a sandpit north of the Educational Trust buildings in King Street, and by the railway between Woodside and Persley. It continues to diminish in frequency, and is now rather a scarce plant in Aberdeen. In one or two of the habitats between King Street and the Links the flower-heads were very frequently destroyed by a fungus (*Ustilago Tragopogi*, Pers.), whose spores formed soot-like masses, filling the space within the involucre. The Goat's-beard appears to be native on the Links; but probably is only a denizen along the railway, which has replaced the Canal of former times.

Adt. Ps. : B : : : . On embankment at Portlethen Station in July, 1912.

CAMPANULACEÆ.

Campanula Trachelium, L. Nettle-leaved Bell-flower. Casual, as outcast or escape from gardens. Native in S. Scotland and England.

A few plants were found in 1902 on waste ground at Rubislaw, possibly relicts from a former garden, of which other traces had disappeared.

C. latifolia, L. Giant Bell-flower. Native in a few places in N.E. Scotland, but often cultivated in gardens, and probably alien here.

"Den of Rubislaw, 1825" (Knight); "but rare" (Harvey).

I have seen it growing there in very small quantity, under conditions very similar to those in which it grows as a native in the neighbouring counties. It may be native in the Den, but was more probably introduced.

Adt. Ps. : : : P Nh : : . Scarce and local.

C. rapunculoides, L. Creeping Bell-flower. A weed of gardens, or an outcast or escape. Native in S.E. Europe; dispersed by cultivation.

"Found near the Infirmary" (Harvey).

It occurs as a garden weed in Old Aberdeen, Woodside, and other parts of Aberdeen; rarely cultivated now.

C. rotundifolia, *L.* Common Blue-bell or Hare-bell. Native.

“*Passim in pratis et solo arenoso*” (Skene). “On Broadhill and Links, on the Gallowhill” (Cow).

Still plentiful on the Links, and on dry banks and in natural pastures in other parts of the parish; but diminishing steadily in frequency as its habitats are restricted. White flowers are not uncommon.

Adt. Ps. In all; common everywhere.

C. rapunculus, *L.* Rampions Bell-flower. Alien. Native in Central and S. Europe, but widely cultivated for its edible roots.

I have seen an example gathered in 1860 in Rubislaw, probably an outcast or garden weed.

VACCINIACEÆ.

Vaccinium Myrtillus, *L.* Blaeberry or Whortleberry. Native; widespread and plentiful on moors and in woods; but now rare in Aberdeen.

“*Passim in nemoribus*” (Skene). “In the Den of Rubislaw; on Donside, above the bridge; at Woodside by the river” (Cow).

It must have been very common in Aberdeen formerly; but it is now approaching extinction locally. I have met with it in the parish only in the remains of wood near Queen’s Road West, and on the rough bank of the Don in Seaton, above the Old Bridge, where there are one or two small clumps.

Adt. Ps. In all; plentiful in suitable woods and on moors.

[**V. Vitis-idæa**, *L.* Red Whortleberry, locally called Cranberry.] Native.

There is no record of its occurrence in Aberdeen, though it may have done so, as a few plants grow in the Den of Maidencraig, in Newhills, and on the hill of Tyrebagger in Dyce.

Adt. Ps. : B M : Nh D O. Very local. Abundant inland.

ERICACEÆ.

Pernettya mucronata, *Gaud.* Native of temperate S. America; often grown as an ornamental shrub in gardens.

One small procumbent bush was found by me among ling in the little wood near Queen’s Road West, in 1907. It seems to have sprung from a berry dropped by a bird (though the fruits do not

seem often ripened here), as it is very unlikely to have been planted where it grows.

Calluna vulgaris, *Hill.* Ling. Native; on moors.

"In ericetis vulgatissima" (Skene). "Stocket Moor, 1833" (Dickie hb.). "On Donside above the bridge" (Cow).

No doubt abundant formerly in Aberdeen; but becoming scarce. I have seen it near the Don only, on a damp bank a little above the paperworks where two or three plants of it grow. It still lingers in Rubislaw, and on the south bank of the Dee, near the sea.

Adt. Ps. In all; usually abundant on heaths and in peat-mosses; sometimes it almost excludes other plants from its habitats.

Erica Tetralix, *L.* Cross-leaved Heath. Native on damp moors.

"Passim in ericetis" (Skene). "Pitmuxtone Moss, 1806" (Knight hb.). "Commonly Moor, abundant" (Cow).

It must have been common in Aberdeen; but now very local and scarce, limited to damp parts of the wood near Queen's Road West, and to wet places on south bank of the Dee, near its mouth.

Adt. Ps. In all; frequent on wet moors and in peat mosses.

E. cinerea, *L.* Fine-leaved Heath. Native on drier moors.

"Passim in ericetis" (Skene). "In Den of Rubislaw; on Donside above the bridge" (Cow).

I have not seen this in either of these localities. It still grows in the same localities as *E. Tetralix*, but in the drier places. Like the other heaths, it must have been plentiful in Aberdeen formerly, but is now threatened with local extinction at no distant date.

Adt. Ps. In all; plentiful on drier moors.

[**Arctostaphylos Uva-ursi**, *Cow* an *Spreng?*] Common Bearberry. Native inland.

"Den of Maidencraig; rare" (Cow).

There seems good reason to suspect that Cow had mistaken *V. Vitis-idea* for this species, which is not known to occur nearer the sea than a moor at Garlogie in Skene, though it is plentiful on many upland moors.

Pyrola minor, *L.* Lesser Winter-green. Native in woods.

"Rubislaw, 1840" (Laing hb.).

A careful search in 1903 showed two or three small groups of

this species in the small wood west of Queen's Road West ; but there seems little prospect of its surviving there long.

Adt. Ps. : : M P Nh : O. Local, but not rare in woods.

[*P. media*, *L.* Intermediate Winter-green.] Native on heaths and in woods.

There is no known record of this having been found in Aberdeen, though it was very probably native here, as well as in the near vicinity.

Adt. Ps. Ng B M P Nh : O. Local, but scarcely rare.

PLUMBAGINACEÆ.

Limonium Suworowii (Regel). A rare casual. Native in Central Asia.

Found in 1907 on town-refuse on Old Aberdeen Links ; probably from seeds in the sweepings of a seedsman's shop.

Statice Armeria, *L.* (*Armeria maritima*, Willd.). Thrift, Sea-pink, or Sea-daisy. Native on the coast, and by the estuaries of the Dee and Don, and on shingles along the Dee. It grows also on the inland hills.

"Passim in littoribus maris" (Skene). "Tory, and Old Town links" (Beattie). "On the Inches ; on the Links, Donmouth" (Cow).

Still common on the low part of the Old Aberdeen Links, especially where apt to be flooded by the highest tides ; but lessened in frequency by removal of turf, and by rubbish deposited on its habitat. Very much less common by the Dee owing to changes there.

Adt. Ps. Ng B : P : : O. Plentiful on rocky coasts ; rare elsewhere.

PRIMULACEÆ.

Primula vulgaris, *Huds.* (*P. acaulis*, *L.*). Common Primrose. Native.

"Passim in sylvis" (Skene). "Donside, etc." (Harvey). "Abundant near Aberdeen, in the Den of Rubislaw, etc." (Murray).

The primrose is still rather common in various places by the Don ; and it is abundant by the north avenue to Seaton House and also in Rubislaw Den ; but in both these localities the numbers are largely due to introduction of plants from without, and there is considerable variation in the colour of the flowers. It also grows wild on the rough south bank of the Dee east of Torry. The

caulescent form may sometimes be found, umbels and separate flowers occurring at times on the same plant.

Adt. Ps. In all; locally plentiful, especially on rocky coasts.

“*P. elatior*, north bank of Dee, one mile above the Den of Cults, Mr. James Cadenhead. Rare” (Fl. Ab.), probably was var. *caulescens*.

P. veris, *L.* Cowslip. Native in pastures in N.E. Scotland, but probably not so in Aberdeen.

“Aberdeen (but very sparingly) on the banks of Dee and Don. Anonymous” (N. Fl.). “In a meadow on Donside at Seaton” (Cow).

Within the parish I have seen only one or two plants, in a meadow by the Don just below Seaton House, where they might have been introduced. I do not know of its existence as a wild plant anywhere else in the lower part of the valley of the Don.

Adt. Ps. Ng : M P (Nh) : : . Local, but common here and there by the Dee, in meadows; a very few plants in one place on the coast of Nigg; and said (Dickie, 1838) to have been found in the Den of Maidencraig. It is very plentiful on the Links of St. Cyrus, in S. Kincardine.

P. farinosa, *L.* Bird’s-eye Primrose. Certainly alien, if correctly named. “A few plants in a wood at Hilton, scarcely indigenous” (Cow).

Lysimachia nemorum, *L.* Wood Loosestrife, or Yellow Pimpernel. Native on wet slopes by streams usually, often in woods or thickets.

“Mr. Middleton’s park near Gordon’s Mills” (Skene). “Ferryhill, Rubislaw, banks of Dee and Don, etc. Not very common” (N. Fl.).

I have seen this by the Don near Woodside, and in Rubislaw Den; but it has become much more scarce than it seems to have been formerly here.

Adt. Ps. : B M P Nh D O. Decidedly local, though common in places.

[*L. vulgaris*, *L.* Great Yellow Loosestrife.] Rare, and a very doubtful native in the counties near Aberdeen. Not known except in cultivation within Aberdeen.

Adt. Ps. Recorded by Beattie from “Deeside, Culter,” and in B. G. from Powberry Island in the Dee, near Kingcausie, in

Maryculter. It appears not to have survived there, as I have looked for it unsuccessfully on several occasions. It might readily have reached the island as an outcast from some garden up-river.

L. Nummularia, L. Creeping Jenny or Moneywort. Only an alien or cultivated in N.E. Scotland.

"Den of Rubislaw, opposite to the falls" (Beattie). Probably planted there.

Adt. Ps. Recorded from Old Machar by Mr. Johnson (Bot. Scotston Moor); but it must have been planted or outcast. Craibstone in Nh.

Tridentalis europæa, L. Chickweed-wintergreen. Native; plentiful in woods and on heaths.

"Rubislaw, Hilton" (Beattie). "Moors, common" (Harvey). "Den of Rubislaw" (Cow). "Stocket Moor" (Fl. Ab.).

This was no doubt as common formerly in Aberdeen as it still is in the adjoining parishes; but the cultivation of its habitats has limited it here to the small wood beside Queen's Road West; where it does not seem likely to survive long, and a small mound below trees near Woodside House.

Adt. Ps. In all; locally plentiful. The flowers show a noteworthy tendency to vary in the numbers of their members.

Glaux maritima, L. Sea Milkwort. Native by the estuaries of rivers.

"July, 29 1763. For the first time I met with the *Glaux maritima*; it grows in great plenty in the low wet sands that are frequently covered with water, in the Oldtown Links near the mouth of the Don" (Skene). "Near the Suspension Bridge" (N. Fl.). "On the Inches, abundantly" (Cow).

It is still common near the mouth of the Don, on the low ground, though in diminished amount, owing for a number of years to the removal of turf for sale, and recently to the deposition of city-refuse on the ground; but the alterations likely to be made in the near future on the low part of the Links, where it can alone grow, will probably be as disastrous to it there as the changes in the course of the Dee have been to it in that estuary.

Adt. Ps. Ng B : : : O. Here and there in wet places close to the sea. Very rare on the north shore of the Don.

Anagallis arvensis, L. Scarlet Pimpernel, or Poor-man's Weather-glass. Rare in Aberdeen, and at most only a colonist in one or two places.

"In cornfields; on Kemhill" (Cow). There is no other published record of its occurrence in Aberdeen.

It grows as a weed in gardens in Old Aberdeen and in Rubislaw; and I have also found it occasionally on town-refuse, on the Links, near the Station, and in one or two other places.

Adt. Ps. (Ng) : : : : . Recorded as a common field-weed near Cove, by Knight and others.

A. cærulea, Schreb. Blue-flowered Pimpernel. A rather rare casual; probably introduced from Continental Europe with agricultural seeds.

"Ferryhill, Mr. William Smith" (N. Fl.).

I have found this on the old bed of the Dee, near the Station, in 1893, by the Dee at Torry, and on town-refuse on Old Aberdeen Links, but rarely more than one or two examples at a time.

Adt. Ps. Ng : : P : : : . On shingle in the Dee about a quarter of a mile above the Bridge of Ruthrieston.

[*Centunculus minimus*, L. Bastard Pimpernel.] Native in N.E. Scotland; extremely local, on damp soil with scanty vegetation; probably overlooked because of its very small size, and less rare than it seems.

Adt. Ps. Discovered on one spot on Scotston Moor, about forty years ago, by Mr. John Sim (Bot. Scotston Moor); not known from any other locality near Aberdeen.

OLEACEÆ.

Fraxinus excelsior, L. Common Ash. There is reason to regard this as an alien around Aberdeen, though so long established, and so freely reproduced by seed as to appear native frequently.

It is common in situations where it had not been planted, the fruits being conveyed considerable distances by the wind. Old ash-trees sometimes mark the sites of former cottages or hamlets.

Adt. Ps. In all; frequent.

Ligustrum vulgare, L. Common Privet. Alien here, though native in S. Britain.

Often planted here in hedges; sometimes appearing to be native, whether as a relict from some forgotten garden, or on waste ground; occasionally in woods as a cover for game.

Adt. Ps. : : : P Nh : : . Seldom met with, apart from cultivation; rare.

APOCYNACEÆ.

Vinca major, L. Great Periwinkle. Native in S. Europe.

Cultivated in gardens in Aberdeen and the vicinity, and sometimes planted in woods. Well-established in Rubislaw Den, on a bank near the house, where it has grown for over forty years.

V. minor, L. Lesser Periwinkle. Native in S. and Central Europe, including S. England.

"Walks leading past Seaton House from the River Don" (Beattie). "In woods and shady places, abundant; at Hilton; in the Den of Rubislaw" (Cow).

Often planted in shrubberies, woods, and other places for ornament, within and around Aberdeen. Spreading readily by its creeping stems, and rooting easily, it has become a common plant in many localities in this district; but I have never seen the fruit produced in Scotland.

Adt. Ps. : B M P Nh D O. Plentiful in many places.

GENTIANACEÆ.

[*Centaureum umbellatum*, Gilib. (*Erythræa Centaureum*, Pers.). Common Centaury.]

"Near Balnagask, Nigg, 1808, Prof. Beattie" (Knight). There is no other record of this species for this part of Scotland, apart from one for Kemnay, in B. G., which proved to be erroneous. Possibly the Nigg plant belonged to *C. vulgare*, Rafn.

C. vulgare, Rafn. (*Erythræa littoralis*, Fr.). Narrow-leaved Centaury. Native near the sea-coasts in many parts of Scotland, but very rare in the counties adjacent to Aberdeen.

"Bay of Nigg" (N. Fl.). "Burnbanks, 1849" (W. M., hb.). "On a sloping grassy bank at the edge of a cliff, between Dounie Well and the Altons, Mr. P. Grant" (B. G.).

Mr. James Taylor has also found it on a grassy slope on a cliff near the south limit of Banchory. I do not know of it anywhere else near Aberdeen.

Gentiana campestris, L. Field Gentian. Native in dry pastures, and in some places plentiful, though decidedly local.

"Frequens in pascuis" (Skene). "North side of Broadhill" (Beattie). "Links" (Knight). "Near the old pier at Torry" (Fl. Ab.).

It may still be found on the Links, though it has become very scarce there of late years.

Adt. Ps. Ng (B) M P : : O. Plentiful on Links north of the Don, and fairly common by the coast between the South Pier and Girdleness.

Menyanthes trifoliata, L. Bog-bean or Buck-bean. Native in marshes and pools throughout Scotland.

“Rubislaw” (Knight). “In Pitmuxton Marsh” (Cow).

Probably common in Aberdeen formerly, but locally extinct for many years. I have not seen it within the parish.

Adt. Ps. Ng B M P Nh : O. In many swamps; frequently abundant.

POLEMONIACEÆ.

Polemonium cæruleum, L. Common Jacob’s ladder. Native in N. Temperate Zone, including S. Britain.

Often cultivated in gardens in Aberdeen, it is sometimes met with as an outcast, e.g. about Rubislaw, where I saw it almost naturalised in the old quarries in 1879, in a place now covered with buildings. It is only a casual here.

Adt. Ps. Ng : : : Nh : : . A rare casual. Here and there in the N.E. of Scotland it has become a subdenizen.

BORAGINACEÆ.

Symphytum officinale, L. Common Comfrey. Native in great part of Europe, including part of Britain, but only an alien in Aberdeen, as an outcast or escape from cultivation when employed as a medicinal plant. Scarcely more than a rather rare casual near Aberdeen, it is a not uncommon denizen in various localities in the adjacent counties.

“Rubislaw Burn” (Beattie). “Rare; in the Den of Rubislaw” (Cow). “In a field by the roadside at Kepplestone” (Dickie, 1838, and B. G., among “introduced plants”). Var. *patens* (Sibth.). I have found this in fair abundance on islands in the Don, at the Cruives, Gordon’s Mills, these islands being just within the parish limits, and also in the field near Mannofield with the type, 9 October, 1915.

Adt. Ps. : : : P Nh D O. Not common, but grows along the Don here and there.

S. peregrinum, Ledeb. Prickly Comfrey. Native in Caucasia.

Grown for a time as a fodder-plant in various places around Aberdeen, this failed to satisfy the expectations of its value, and dropped out of cultivation; but it may often be met with as the result of the experiment, by the sides of fields and roads, on waste ground, etc. In autumn, 1907, I came on it near Cattofield, in three localities about the Stocket and Rubislaw, and by East Merkland Road, and in 1909 found plants near Mannofield.

Adt. Ps. : B M P Nh : : . A scarce subdenizen.

S. tauricum, Willd. Native of S. Russia and Caucasia.

Sometimes grown in gardens or shrubberies near Aberdeen, and occasionally met with as an outcast or casual.

Found by me on waste ground in Rubislaw, and in a shrubbery in Maryculter.

S. tuberosum, L. Tuberous Comfrey. Native in damp ground, especially by streams, where it is often abundant.

"Den of Rubislaw" (Knight and Harvey). "Sides of fields and roads, and on waste places, common; roadside at Rubislaw; Oldtown Churchyard, abundant" (Cow). "Not infrequent about Aberdeen and Old-town, as near Gilcomston Dam; road opposite Fountainhall; at Stocket, etc." (B. G.).

Though this has disappeared from several of the localities mentioned, and is no longer "abundant" anywhere near the Old-town, it is still fairly common within the parish, in suitable localities.

Adt. Ps. In all; local, but plentiful in a good many places.

Borago officinalis, L. Common Borage. Native in the Mediterranean region, but widely dispersed by cultivation, largely because of supposed medicinal virtues. Only a casual, now rare, in Aberdeen.

"Plerumque in hortis, an indigena?" (Skene). "Rare in the vicinity of Aberdeen" (N. Fl.). "Although by no means indigenous, yet often seen about Aberdeen, chiefly near gardens and houses, as in the Den of Rubislaw" (Cow). "In a field behind Garnethill" (Fl. Ab.).

I have seen this only as a casual on rubbish on Old Aberdeen Links, in 1877 and again in 1905, and on rubbish in Ferryhill in 1910. It thus appears to be much less common, even as a casual,

than formerly, perhaps because it is less often cultivated than it used to be here.

Anchusa sempervirens, L. Evergreen Alkanet. Native in Western Europe, formerly cultivated in Scotland as a useful plant. Escaped or outcast from cultivation it has become a denizen in many places in N.E. Scotland. It often forms large colonies from its mode of growth.

"Below ye Den of Rubislaw; Hilton; Old Aberdeen, etc." (Beattie). "Avenue at Rubislaw, and Old Aberdeen" (Knight). "Rubislaw House" (Dickie hb., 1835). "Roadsides and the vicinity of old gardens; not frequent, and never completely in a state of nature. Near the Rubislaw Distillery, Old Aberdeen and Hilton" (N. Fl.). "Side of Cluny's Lane and road at the head of it leading north, and at the place of Rubislaw" (Cow).

This has become much less common within the parish in recent years, several of its habitats having been covered by the extension of streets, while others, such as that by Cluny's Wynd, as it is now called, have been cleared away in making up roads.

Adt. Ps. : B M P Nh D O. Very local; but abundant in a few places.

Lycopsis arvensis, L. Field Bugloss, or Small Bugloss. Colonist. Native in S. Europe; but very widely spread as a weed of cultivation.

"Ad vias, locis incultis; frequentissime inter segetes et ad agrorum margines" (Skene). "Road to the Bridge of Dee" (Beattie). "Abundant in fields between Craiglug and the Bridge of Dee, on the north side of the river" (N. Fl.). "Common in fields at Footdee and Torry; in fields west from the Broadhill; near Powis Hermitage; in cornfields west from Cluny's Lane" (Cow).

This is a common field-weed in and around Aberdeen, and is also frequent on refuse, on Old Aberdeen Links, in sand-pits, and in other places for depositing waste-products.

Adt. Ps. In all. Common in many fields, but somewhat local.

Pulmonaria officinalis, L. Common Lungwort. Native in Europe; long in cultivation in Scotland, and formerly held in repute as medicinal.

Occasionally found as a casual or outcast.

Adt. Ps. : : : : : (O). Recorded from Old Machar, by Mr. John Sim (Bot. Scotston Moor).

Mertensia maritima, S. F. Gray. Sea Gromwell. A rare native on the sea-coast, but long extinct in Aberdeen.

"In the sand at Donmouth, but in extremely small quantity, in 1835" (N. Fl.).

I have found no other reference to its occurrence within Aberdeen, so it probably very soon died out near Donmouth.

Adt. Ps. Ng B : : : : . "South of the Salt Works, Bay of Nigg" (Beattie). It used to be not uncommon among the shingle at the Bay of Nigg; but the removal of the shingle to form concrete blocks used in building the South Breakwater at the mouth of the Dee led to the extirpation of the Sea Gromwell from Nigg before 1880.

Lappula echinata, Gilib. (*Echinospermum Lappula*, Lehm.). Native in Europe and perhaps in other parts of the N. Temperate Zone, but dispersed widely as a weed of cultivation, and a frequent casual on rubbish or in tares.

First observed near Aberdeen, so far as I can ascertain, only in 1878, by myself near Old Aberdeen. Though scarcely more than a casual about Aberdeen at present, this appears as if it might become a colonist, as it seems to be more common than it was.

Adt. Ps. : : : : (D) : . A rare casual.

Benthamia lycopsoides, Lindby. A very scarce casual. Native in California.

One example, in flower, found by me, in July, 1909, on Football ground, Old Aberdeen Links, on town refuse.

Myosotis "scorpioides." Scorpion-grass, or Forget-me-not. Native.

Under this name Skene appears to include all the native species of *Myosotis*, distinguishing *M. collina* alone from the others, because of its small size. All the aquatic species are confounded by Cow under the name "*palustris*." Dr. Murray (N. Fl.) distinguishes two aquatic species under the names *M. palustris* (*M. cæspitosa*, F. Sch.) and a supposed new species *M. secunda* (*M. repens*, G. Don).

M. palustris, Hill. Great Water Forget-me-not. Usually by streams.

Frequent by the Don; less common by the Dee; here and

there by the burn between Angusfield and Oldmill. This species was not distinguished from the others even in B. G.

Adt. Ps. In all, chiefly by the Don and the Dee; often plentiful. Var. *strigulosa* (R.) is commoner than the type locally.

M. repens, *G. Don*. Creeping Water Forget-me-not. Native in marshes and by small streams.

"Stocket Moor, 1833" (Dickie hb.). "Marsh at Seaton, 1845" (Polson hb.).

It has become very scarce within Aberdeen, if it is not already extinct; but it must have been frequent here formerly.

Adt. Ps. In all; often plentiful in suitable habitats, though local.

M. cæspitosa, *F. Schultz*. Tufted Water Forget-me-not. Native in marshes, shallow ditches, etc.

"Common" (Knight). "Stocket Moor, 1833" (Dickie hb.). "Old Aberdeen Links, 1849, Jas. Farquharson" (W. M. hb.).

Adt. Ps. In all; general and frequent.

M. sylvatica (Hoffm.). Wood Forget-me-not. Native in most parts of Britain, in woods and thickets, but alien near Aberdeen, though often cultivated in gardens, and occasionally springing up as an outcast.

Adt. Ps. : : M P : : : . Near Cults, as a casual, rare.

M. arvensis, *Hill*. Field Forget-me-not. Native in dry soils; becoming larger and more common as a weed in many cultivated soils.

In every record after Skene's; too common and general to require special records.

Adt. Ps. In all; plentiful.

M. collina, *Hoffm*. Early Forget-me-not. Native; plentiful in spring and early summer in dry places with little vegetation near the coast.

"In nostris campis maritimis, solo arenoso" (Skene, as a dwarf form of *M. scorpioides*). "Old Town Links, 1834" (Dickie hb.). "Kettle hills, 1845" (Polson hb.). "Abundant on the benty hillocks south of Donmouth" (N. Fl.). "On the side of the Broadhill" (Cow). "Near the Lunatic Asylum" (Fl. Ab.) and again in B. G., but with "formerly" added).

It is still common on the dunes; and it also grows in small quantity on dry banks, on walls, and similar places.

Adt. Ps. : : : (P) : : O. Abundant here and there on bare places on dunes north of the Don. I have not seen it inland.

M. versicolor, Sm. Yellow-and-blue Forget-me-not. Native in poor dry soils, on walls, etc.

"Frequent enough in the neighbourhood of Aberdeen" (N. Fl.).

Not abundant, though widespread.

Adt. Ps. In all; not uncommon.

Lithospermum officinale, L. Common Gromwell. Regarded as native in most parts of Britain, but only a rare casual near Aberdeen.

"Hilton, Stocket, 1807" (Knight). "On waste and uncultivated places, rare; in the Den of Rubislaw" (Cow).

I have never met with this in Aberdeen; and have only once seen it even as near as Banchory Ternan, nearly forty years ago. I have a specimen gathered by Dr. Dickie, in 1835, at Kettock's Mill, in Old Machar.

L. arvense, L. Corn Gromwell. Only a casual in Aberdeen, not common. Native in S.E. Europe, and widely dispersed as a weed of cultivation.

"Roadsides, waste places, and among crops; not very common, and scarcely wild. At the lower part of the Inch; and in fields in Rubislaw" (N. Fl.). "Hilton" (Knight). "Field near Torry, rare; at the Hardgate, etc." (Cow). "In fields near Carden's Haugh; on the Inch, etc." (Fl. Ab.).

This appears to be less common here than it was formerly, possibly because of the giving up of wheat as a field-crop, and also because the seeds of weeds are better cleared from among cereals. I have met with it only as a casual, usually on town-refuse; on the old bed of the Dee, in 1893 and subsequently, in sand-pits by King Street and near Old Aberdeen, on Old Aberdeen Links in recent years, etc.

Adt. Ps. : : : : : (O). Recorded by Mr. J. Sim.

Echium vulgare, L. Viper's Bugloss. A rare casual about Aberdeen. Native in Central Europe, including S. Britain, and in the Mediterranean region; widely dispersed as a weed of cultivation.

“Ad semita” (Skene). “In cultivated fields, generally among wheat. Occasionally in the vicinity of Aberdeen; probably not wild” (N. Fl.). “At the fishing village, Footdee, 1828; once in a field west from Powis Hermitage” (Cow).

Only two or three plants have been found by me near Aberdeen, on the old bed of the Dee in 1893, and one on the edge of a field west from Tillydrone, Old Aberdeen, in 1902. The greater frequency formerly was apparently due to the introduction of seeds with cereals. It evidently does not keep its ground here.

Adt. Ps. : (B) : (P) : : (O). A rare casual for a considerable distance round Aberdeen, though well established as a colonist on the braes of St. Cyrus, in Kincardineshire.

Cerinthe minor, L. Native of South Central Europe.

In July, 1911, I found two or three plants in flower on materials used in making the new road between the New Bridge and Old Aberdeen Links.

CONVOLVULACEÆ.

Volulus sepium, Junger. Great Bindweed. Subdenizen, as an escape or outcast from cultivation. Native in N. Temperate Zone, including S. Britain; but aided in dispersal by readily escaping from gardens.

Of rather frequent occurrence in hedges, in thickets, etc., here and there about Aberdeen, sometimes as a relict from gardens, the traces of which have disappeared. Gordon's Mills, Rubislaw in 1877, on a site now under houses, etc.

Adt. Ps. : B : P Nh : O.

Convolvulus arvensis, L. Small Bindweed. A well-established denizen in several localities in the parish; but very doubtfully native near Aberdeen, though abundant in the south of Scotland and England.

“Ad margines agrorum, solo arenoso. Solwmmodo vidi ad marginem agri in Links, 1764” (Skene). “In a field adjacent to the Mill at the Links” (N. Fl.)—this refers to the Bannermill. “Formerly in a field at the Links, south of Bannermill; where it was also known to Dr. D. Skene, 100 years ago (B. G.).

It is easily introduced into new localities, and is very ready to establish itself in a short time, as shown during the past thirty or forty years in this vicinity. For upwards of thirty years it has been plentiful in a roughly causewayed court behind my house in Old

Aberdeen, pushing up between the stones. It had probably been introduced with hay, imported as fodder. In 1891 it was observed on town-refuse spread on the Links, among the sandhills a little north of the Bathing Station; and it spread there for a few years until destroyed by the formation of the roadway. It is now abundant on an earthen embankment at the west side of the formerly used powder magazine, north-east of the Broadhill, having probably been brought there about 1894. In 1895 I observed one or two examples by a wall between fields east of King Street, opposite Regent Walk. In 1898 there were one or two plants on a piece of the ground added to the Railway Station after filling up the old bed of the Dee, although I had not observed any during a careful scrutiny of the ground each year from 1893 until 1898. Year after year since its appearance the Bindweed has become more common in this place, where it forms a tangled bed over a surface of many square yards; but the multiplication of railway lines for shunting is likely to lead to its diminution here. It has appeared also here and there by the Deeside Railway, e.g., near Holburn; and it occasionally springs up on refuse-heaps, in sandpits and elsewhere, but is apt to be destroyed in such places by later deposits of rubbish. In 1906 Mr. A. C. Macrae found it in the old quarries of Rubislaw.

Adt. Ps. Ng : : P Nh D : . Very local; probably only a rare denizen, though long known by the road from Torry to Bay of Nigg, near the old church.

C. tricolor, L. Native in the Mediterranean region; very commonly grown as an annual in gardens. Only a casual near Aberdeen, springing from seeds thrown out with refuse.

Found by me on rubbish on the Links, near East Merkland Road, etc., in 1905 and seven following years.

Cuscuta europæa, L. Dodder. A very rare casual, introduced with agricultural seeds. There is doubt as to the species found here.

"Near Aberdeen, Mr. Alexander Smith" (Smith's Fl. Brit., 1800, p. 283). Murray (N. Fl., p. 150) quotes this, adding as food-plants, "nettles, flax, etc.," and also "Printfield, Anonymous." Dickie (Fl. Ab.) gives the latter locality from the N. Fl. omitting the previous record; but in 1860 (B. G., p. 222, among "introduced plants") he alters this to "*Cuscuta Epilinum*, Weihe. On flax, in fields, near Printfield, Dr. Murray."

Dodder has not been again observed in Aberdeen, or in the adjacent parishes; and the evidence as above does not permit of determining the species that occurred here. It was not improbably *C. Epilinum* in both localities, introduced with seeds of flax, when that was a field-crop.

I have been informed that *C. Trifolii*, Bab., was once found by Mr. John Sim, on clover, at Gateside in the parish of Strachan, Deeside.

NOLANACEÆ.

Nolana prostrata, L. Native of Peru; a favourite annual in gardens.

I have found it as a casual on town-refuse, e.g., on the old bed of the Dee, near the Railway Station, in 1893.

SOLANACEÆ.

Solanum Dulcamara, L. Bittersweet. Formerly almost a denizen in Aberdeen; well-established in many places in N.E. Scotland. Its occurrence in this district is due to former repute as a medicinal plant probably; which has greatly aided its dispersal. Regarded as native in N. Temperate Zone, including S. Scotland and England.

"Den of Rubislaw, rare" (Beattie and Knight). "A little north from the Firhill-well" (Cow). "In one or two places adjacent to the west end of North Street" (N. Fl.). "Roadside near the Gallowhill" (Fl. Ab.). "By the bridge over a rivulet, east from old Bridge of Dee, Dr. A. Fleming" (B. G.). "Formerly near Firhill-well" (J. Roy, in MS.).

The Bittersweet appears to have died out or been destroyed in all these localities. In 1905 I found a number of plants on town-refuse spread to form a football-ground on Old Aberdeen Links, between Linksfield and East Seaton, and a few in an old sandpit near Old Aberdeen, in both places seemingly derived from the refuse of gardens. In each locality a few small plants have continued to grow, though threatened with extinction wherever it is not protected from harm.

Adt. Ps. : : : P Nh : O. A rare casual or subdenizen.

S. nigrum, L. Black or Common Nightshade. A very local casual or almost a colonist as a garden-weed. Native country uncertain, as it has been very widely dispersed as a weed of cultivation.

This has grown as a weed in my garden in Old Aberdeen for more than thirty years, but when or how introduced is unknown to me. It occasionally appears as a casual on town-refuse, e.g., on Old Aberdeen Links.

S. triflorum, Nutt. A rare casual near Aberdeen ; native in the prairie states of the U.S.A., and probably brought here with seeds of cereals.

Two or three plants were found by me on rubbish on the football-ground near East Seaton, in autumn, 1908, in flower and fruit, and in September, 1914, I found a few on made-up ground near Pittodrie.

S. tuberosum, L. Potato. Native in the temperate parts (by height above sea-level) of Chili and Peru ; very widely dispersed by cultivation.

As might be expected the Potato very frequently springs up in or by fields, on waste ground, and on rubbish. When undisturbed it may keep its place and spread from year to year.

Lycopersicum esculentum, Mill. Tomato. Native in S. America. Very widely dispersed by cultivation, but able to grow without protection only in warm climates.

On town-refuse, e.g., on the old bed of the Dee in 1893, and there, on Old Aberdeen Links and in Ferryhill in following years, seedlings sprang up by thousands. A good many of these flowered ; and a few plants even ripened a few fruits in exceptionally favourable years, but the seeds are not matured to reproduce the species.

Adt. Ps. On rubbish near Kaimhill and Ruthrieston in 1910, and by railway in Nigg and by River Don in Old Machar below Woodside in 1911.

Hyoscyamus niger, L. Common Henbane. Native in Europe, probably including England and S. Scotland ; but held in repute as medicinal, and widely dispersed in cultivation. Only a rather rare casual here.

“Rubislaw Den, 1835” (Dickie hb.). “Among the debris of Hilton Quarries” (Cow).

I have seen it as a weed in gardens in Old Aberdeen, and since 1898, on rubbish near E. Merkland Road and on Old Aberdeen Links.

Adt. Ps. Ng : : : : . Casual and very scarce.

SCROPHULARIACEÆ.

Verbascum Thapsus, L. Great Mullein. Native in Europe, including S. Britain; often cultivated as a herbaceous perennial in gardens, and not infrequent as a casual around Aberdeen.

“In the Den of Rubislaw” (Cow).

I have met with it about Rubislaw quarries, on waste ground at Ferryhill and Old Aberdeen, and on town-refuse on Old Aberdeen Links.

Adt. Ps. : : : : Nh : O. A rare casual.

Linaria Cymbalaria, Mill. Ivy-leaved Toadflax. Native in S. Europe, on rocks and walls; but widely dispersed by being sowed on old walls for ornament; a denizen on walls about Aberdeen.

“Den of Rubislaw, rare” (Fl. Ab.).

It has become plentiful on walls in the garden of Rubislaw Den House; for upwards of forty years it has grown on walls in the hollow at Ferryhill, formerly known as Roy’s Nursery; and it is abundant on the walls of a garden at Johnston, on the west border of the parish and on a wall beside the Don below Gordon’s Mills. It reproduces itself freely in all these places. I have also seen it on town-refuse on Old Aberdeen Links.

Adt. Ps. : : (M) P : : : .

L. Elatine, Mill. Sharp-leaved Toadflax, or Fluellin. Probably native on the coast of Italy; widely dispersed by cultivation. A rare casual in Aberdeen.

I found two or three plants on the old bed of the Dee, in 1893.

L. purpurea, L. Purple Toadflax. Native of S. European mountains; cultivated as a herbaceous plant or on walls in gardens.

A very local denizen in Aberdeen, on a wall in College Bounds, in Old Aberdeen, in front of the manse of the Professor of Humanity. I have seen an example taken from this wall in 1845, and have been informed that it was growing there in 1830. It has reappeared after replastering the wall on several occasions. It was found on waste ground at Morningfield in September, 1909, by Mr. G. Johnstone.

L. vulgaris, Mill. Yellow Toadflax. Native in Europe, including much of Great Britain probably, but scarcely more than a casual, escape from gardens in Aberdeen, though a common denizen in a good many places in the N.E. of Scotland.

"In a ditch, among whins, east of Ewing's Hermitage," Berryden (Beattie). "Polmuir, 1806, rare" (Knight). "Near Craiglug, etc., rather local" (Fl. Ab.). "Den of Rubislaw" (Cow).

Within the parish I have seen this on rubbish on Old Aberdeen Links, and in one or two sandpits, and in each place it has usually perished under new deposits of rubbish in a year or two. In autumn, 1909, it was very plentiful between the sidings east of Kittybrewster Station; and many seedlings sprang up on materials used for widening the railway embankment between Kittybrewster and Don Street Stations.

Adt. Ps. : B : (P) Nh D O. Well established in two or three places.

L. chalepensis, Mill. A field-weed in S.E. Europe.

In August, 1908, I found an example on town-refuse on Old Aberdeen Links near East Seaton, perhaps from grain-siftings.

[*L. viscida*, Moench (*L. minor*, Desf.)]. Least Toadflax. Native in S. Europe, widely dispersed as a weed of cornfields and of waste ground.

It seems to be peculiarly apt to be distributed along railways, in the ballast used in making up the tracks. In 1893 I found it in abundance on the railway lines a little to the south of Muchalls Station, in Kincardineshire, about eleven miles south of Aberdeen, considerably farther north than it had previously been observed in Scotland.

Scrophularia nodosa, L. Knotted Figwort. Native on banks of streams and near pools, diminished in frequency in Aberdeen, by drainage.

"In locis umbrosis et humidis; Bridge of Don" (Skene). "Den of Rubislaw; Hilton" (Cow). "Craiglug" (Knight).

This is now rather scarce in the parish; but I have seen it by the Don, by the Dee, in Rubislaw, and in old quarries near Cairncry, though only a few plants in each place.

Adt. Ps. In all; fairly common in suitable habitats.

S. vernalis, L. Yellow Figwort. Subdenizen, on old walls, and as a weed in a few gardens, escaped from cultivation. Native in Central and S. Europe; but alien in Britain.

"Reid's Garden" (Beattie). "Said to grow by a wall in the Old-town" (Harvey).

It still grows in Old Aberdeen about one or two gardens.

Mimulus Langsdorffii, Donn (*M. luteus* of British floras). Yellow Mimulus or Monkey-flower. Native in Western N. America; dispersed by cultivation, being a favourite perennial in gardens since its introduction into Britain soon after 1820. Easily establishing itself in marshes and ditches and by the sides of streams and pools, its seeds appear to be carried in mud by wading birds, from place to place, and are widely dispersed in suitable habitats where they could not have been outcasts or escapes from a garden. This is already in many places in N.E. Scotland one of the most conspicuous features by streams and in ditches.

It is not mentioned as found near Aberdeen in any record that I know of except MS. notes of Dr. J. Roy, undated, but probably from about 1865, in which it is mentioned (as *M. luteus*) from "Burn coming from Woodhill," and from "Black Nook, Old Bridge of Don, etc." I have myself known it as not uncommon on both sides of the Don, below Seaton House; and I have also seen a few examples by the Dee below the Old Bridge, though scarcely able to escape extirpation there. It does not appear possible to ascertain when it became a denizen in this neighbourhood; but in the "Aberdeen Free Press," of 5 October, 1907, an anonymous writer stated: "I may perhaps mention on the authority of the late Professor Dickie that he himself sowed seeds of the plant in various places about this neighbourhood, in the hope of its ultimate naturalisation."

Adt. Ps. In all; abundant in many suitable localities.

Var. *guttatus*, DC. A rare casual near Aberdeen, e.g., on the old bed of the Dee, near the Railway Station, in 1894; occasionally met with in similar places to the type throughout the district.

Digitalis purpurea, L. Common Foxglove. Native; on rough banks, in woods, etc.; locally plentiful.

"Freq. in arvis et pascuis" (Skene). "Very abundant about Aberdeen in the Den of Rubislaw; at Hilton" (Cow).

Still moderately common on the banks of the Don, from the New Bridge upwards, as well as on quarry refuse about Hilton, Cairncry and Rubislaw, and by roads and walls in various parts of the parish; but it cannot now be said to be abundant anywhere within our limits.

Adt. Ps. In all; plentiful in many places.

Veronica hederifolia, L. Ivy-leaved Speedwell. Colonist in cultivated ground, and occasionally in waste places; common about

Aberdeen. Probably native in England; but so widely dispersed as a weed of cultivation that its origin is difficult to trace.

Not in Skene's notes. "Very common in fields" (Knight). "Near Aberdeen, at Ferryhill, Lunatic Asylum, Old Aberdeen Links, Powder Magazine, and Alford Place, and common in fields bordering the road to the Bridge of Dee" (N. Fl.). Cow adds to these records: "fields about Bridewell, and between Spittal and King Street."

Many of these localities are now covered with streets; but this Speedwell is still a plentiful weed in fields and gardens around the city.

Adt. Ps. In all; but more local and less common than in Aberdeen.

V. didyma, Tenore (*V. polita*, Fr.). Grey Field Speedwell. Colonist, much less common than *V. hederifolia*, even in the few places where it is met with, usually as a weed in gardens. Native in the Mediterranean area; but widely dispersed as a weed of cultivation.

Though not included in any of the published records of the Aberdeen flora, this is not uncommon in a few gardens in Old Aberdeen, where I have also seen it as a rare weed in fields. In 1902 I saw a few examples on waste ground in Rubislaw.

Adt. Ps. : B M : : O. Rare.

V. agrestis, L. Common Field Speedwell. Very common weed in cultivated ground; but also not infrequent on waste ground, earthen walls and other places bearing a scanty vegetation; hence it may be native in Scotland, though it is probably a colonist, possibly a denizen in localities very favourable to it. *V. agrestis* has become so widely dispersed by man's aid that it cannot now be referred with confidence to its native land, though this may be S. Europe.

"In cultis" (Skene). "Frequent" (Knight).

General and abundant.

Adt. Ps. In all; common.

V. Tournefortii, Gmelin (*V. Buxbaumii*, Tenore, *V. persica*, Poir.). Probably a comparatively recent immigrant into Europe from S.W. Asia; rapidly dispersed as a weed of cultivated ground, over almost all the temperate zones. It was first observed in the British Islands about 1820; and was first recorded as found in

Britain in Johnston's Flora of Berwick, in 1829, from a shrubbery in Berwickshire.

"Weed in gardens at Rosemount Terrace, Dr. A. Fleming" (B. G. among "introduced plants").

It is now a very common weed of gardens and fields around Aberdeen.

Adt. Ps. Ng B : P Nh D O. Frequent in cultivated ground and on waste places. It is widespread in N.E. Scotland, and rapidly becoming more abundant.

V. arvensis, L. Wall Speedwell. Probably native on dry soils with a thin vegetation, such as sand-dunes and bare banks; but more abundant and larger in gardens and fields, where it has become a plentiful weed, of too general occurrence to require citation of records or of localities.

Adt. Ps. In all; common and often abundant.

V. serpyllifolia, L. Thyme-leaved Speedwell. Native; often occurring as a weed in cultivated ground.

"In pascuis et pratis, passim" (Skene).

Too general and frequent to require further citations or enumeration of localities, though nowhere very abundant.

Adt. Ps. In all; common.

V. officinalis, L. Common Speedwell. Native in pastures and grassy open woods, as well as on waste ground.

"Rubislaw Den and Stocket, 1833" (Dickie hb.).

Still frequent in suitable localities, chiefly in the north and west districts of the parish, though less so than before cultivation of the ground.

Adt. Ps. In all; common.

[*V. spicata*, L.] Native of England and Central Europe; cultivated as a garden perennial.

Found by me on waste ground near Old Aberdeen on the north bank of the Don below the Old Bridge and near Bucksburn Station, no doubt outcasts or escapes from gardens.

V. Chamædrys, L. Germander Speedwell. Native in natural pastures and on broken ground.

"Passim in pratis et pascuis" (Skene). "Banks of the Don, abundant; Woodside, by the river; Rubislaw Den" (Cow).

Rather general on rough banks, by waysides, on the sand-dunes, etc.; but tending to become less frequent in Aberdeen.

Adt. Ps. In all; abundant in many places.

V. scutellata, *L.* Marsh Speedwell. Native.

"In locis aquis et humidis" (Skene). "Stocket Moor, 1833" (Dickie hb.). "At Ferryhill, Rubislaw Quarry, Old-town Links, etc." (N. Fl.). "Gilcomston Dam" (Fl. Ab.). Apparently extinct within Aberdeen, though it had probably been common on wet moors and in marshes.

Adt. Ps. In all, in wet places. Var. *hirsuta*, Weber, is not uncommon locally from Durris westwards, in the valley of the Dee; but there is no evidence of its having been observed nearer Aberdeen than Peter's Braes about a mile west of Culter, where I found it in 1917.

V. Anagallis-aquatica, *L.* Water Speedwell. Native in N.E. Scotland.

"On the side of Powis Burn near the Links and ditches there, rare" (Cow).

There is no other record of its occurrence in Aberdeen, or in the adjacent parishes for a considerable distance. Though fairly common in a few places in Aberdeenshire and Kincardineshire, in ditches and pools, this is a very local resident; and in view of Cow's inaccuracy as to other species, his record of this must be regarded as very doubtful.

V. Beccabunga, *L.* Brooklime. Native in wet places, in shallow water and on mud.

"Crescit frequens ad rivulos" (Skene). "Gilcomston Dam, 1833" (Dickie hb.). "In the Den of Rubislaw; on Canal banks near Footdee; in a ditch at Powis hermitage; in Powis Burn above Links, etc." (Cow).

The Brooklime still grows by the Don in Seaton, as well as in ditches and old quarries in the inland parts of the parish. The condition of Powis Burn below Old Aberdeen has rendered it unsuitable for the growth of plants that require comparatively unpolluted water.

Adt. Ps. In all; common in suitable habitats.

Euphrasia officinalis, *L.*, agg. Common Eyebright. In published lists of the local flora there has been no attempt to break up the aggregate, which is abundant in natural pastures

and on grassy moors in N.E. Scotland, and must also have been plentiful in Aberdeen formerly.

“Vulgatissima in pratis” (Skene). “On the broadhill; in the Den of Rubislaw; at Torry” (Cow).

Of the named “species” into which the aggregate has been broken up in recent years three were determined by Mr. F. Townsend among specimens collected by me within Aberdeen, viz.:—

E. borealis (Townsend.) Wettst. In short pasture on low damp parts of Old Aberdeen Links, near the Don, in 1900.

Adt. Ps. Ng : : : : O.

E. curta, Fr. On sandhills near the Don, in short pasture, in 1897.

Adt. Ps. : : : : : O.

E. brevipila, Burnat et Gremlé. In pastures on sandhills of Old Aberdeen Links in 1897.

Adt. Ps. In all; common in pastures.

The following forms were also detected by Mr. Townsend among examples collected by me in close vicinity to Aberdeen; and some, if not all, of them were probably native in Aberdeen, before drainage and cultivation had changed the surface.

[**E. curta**, Fr., var. **piccola**, Townsend.] On an embankment beside a ditch in Nigg.

[**E. gracilis**, Fr.]

Adt. Ps. In all; on drier moors, on poor soils.

[**E. scottica** (Townsend.) Wettst.]

Adt. Ps. Ng B M : Nh : O. On damp moors, on poor soils, where vegetation is scanty.

[**E. Rostkoviana**, Hayne.]

Adt. Ps. : : : : : D : . In short pasture by roadside.

Bartsia Odontites, Huds. Red Eyebright. Native in damp pasture.

“Passim in pascuis humidis, in fossis et pratis” (Skene). “Rubislaw” (Beattie). “Stocket, 1834” (Dickie hb.). “On the east side of Hilton quarries” (Cow). “Rather rare about Aberdeen” (Fl. Ab.).

Within Aberdeen I have found this only once, about thirty years ago, by a bridge on the Stocket Road over the burn at Angusfield.

Adt. Ps. : B M P : D O. Local, and rarely plentiful ; usually in damp places by roads, among short grass. I have never seen it in this district so abundant as in some parts of Perthshire.

Pedicularis palustris, *L.* Marsh Lousewort. Native ; in bogs and marshes.

"Passim in pascuis depressis humidis" (Skene). "Pitmuxton Marsh" (Cow and Laing hb., 1838).

This must have been abundant on the wet moors that covered so much of Aberdeen ; but it seems to have become extinct here when Stocket Moor was broken up.

P. sylvatica, *L.* Field Lousewort. Native on damp (not wet) moors.

"In humidis et uliginosis" (Skene).

This was common on Stocket Moor, and must have been so on similar moors in the parish formerly ; but now only a few examples survive in damp places in the little wood near Queen's Road West.

Adt. Ps. In all ; common on almost every suitable moor.

Rhinanthus Crista-galli, *L.* Common Yellow-rattle. Native in dry natural pastures ; partially parasitic on the roots of grasses, like most of the tribe *Rhinanthideæ*, to which it belongs.

"Passim in pratis et pascuis" (Skene). "Links between Dee and Don" (Cow).

Still common on parts of the Links, and in natural pastures of the inland parts of Aberdeen ; but it must have been more frequent in early times.

Adt. Ps. In all ; abundant in dry natural pastures.

R. major, *Ehrh.*, var. *aptera*, *Fr.* Great Yellow-rattle. Casual only, on rubbish, in Aberdeen ; probably introduced from the south of Scotland or from England, among the seeds of cereals or of grasses.

It is too abundant as a weed of such crops in various parts of Scotland ; but was first observed in this district in 1896, by myself, in a field of rye-grass near Grandholm in Old Machar. It has since that year been found, in fields of oats, barley, and grass, in various parts of Aberdeenshire and Kincardineshire ; and it appears likely to become here, as elsewhere, a troublesome weed in these crops. Within Aberdeen I have found it only on town-refuse, on Old Aberdeen Links, in 1906.

Adt. Ps. Ng B : P : D O. Less common in these than in more distant parishes.

[*Melampyrum pratense*, *L.*] Common Cow-wheat. Native ; in woods and thickets.

Plentiful in many places inland, but rare near the sea.

Adt. Ps. : : M : : : . In the Corbie Den, in Maryculter ; not known elsewhere near Aberdeen.

[*M. sylvaticum*, *L.* Wood Cow-wheat.] Rare, and very local in N.E. Scotland.

One record near Aberdeen by Prof. Beattie, from "Den of Tilburies," in Maryculter, not since confirmed.

LENTIBULARIACEÆ.

Utricularia vulgaris, *L.* Common Bladderwort. Native, in pools and bogs.

"Ferryhill" (Knight and Dickie, 1838).

Long extinct within Aberdeen.

Adt. Ps. (Ng) : (M) (P) : : O. Very local, usually in holes in peat bogs. It rarely flowers. *U. major*, Schrad, was probably the species that grew in Aberdeen, as it does in pools in the Moss of Whitestripes in Old Machar.

[*U. ochroleuca*, *R. Hartm.* Intermediate Bladderwort.] Native in shallow pools on moors.

Not known within Aberdeen.

Adt. Ps. : : : : O. Scarce and very local, on Scotston Moor.

U. minor, *L.* Lesser Bladderwort. Native, in swamps and pools, local.

"Moss of Ferryhill, plentiful, 1826" (Harvey hb.).

Long extinct in Aberdeen, though it had probably occurred in several of the swamps within the parish.

Adt. Ps. : : : P : : O. Local, in bogs, not common ; rarely flowering.

Pinguicula vulgaris, *L.* Common Butterwort. Native in bogs and on wet moors.

"Wood at Rubislaw" (N. Fl.). "Pitmuxton Marsh" (Cow). "Stocket" (Fl. Ab.). Probably plentiful in Aberdeen formerly, but now extinct or nearly so.

I have not seen it within the parish for a good many years.

Adt. Ps. In all ; general in suitable habitats, often abundant.

VERBENACEÆ.

Verbena officinalis, L. Vervain. Casual in Aberdeen, as an outcast or escape from a garden. Native in the Mediterranean region.

I found a few plants in 1893 on the old bed of the Dee, near the Railway Station; and I have also seen one or two on refuse elsewhere.

LABIATÆ.

[*Mentha rotundifolia*, Huds. Round-leaved Mint.] Native in S. and Central Europe, including S. England; often grown in gardens in Scotland, and thus appearing as an outcast or escape. It readily becomes a denizen in damp ground; and though very local, one meets with it here and there in the N.E. of Scotland as a well-established denizen.

I have not seen it within Aberdeen, nor is there any record of it.

Adt. Ps. Ng B : : : D O. Local, and not common.

M. spicata, L. (*M. viridis*, L.). Spearmint. Only a casual in Aberdeen. Native in Central Europe; often grown in gardens in Scotland, and occasionally becoming a denizen by streams.

A vigorous clump appeared in 1896 on the old bed of the Dee, near the Railway Station, and continued to spread for a few years; but it was destroyed in the extension of sidings from the Station.

Adt. Ps. : : : : D O. Rare and local.

M. piperita, L. Peppermint.

"Occasionally about Aberdeen" (Cow).

A hybrid between *M. aquatica* and *M. piperita* is much more frequently grown in gardens than the latter species, and is a very frequent denizen by streams in various parts of the N.E. of Scotland, though only a casual within Aberdeen.

It appeared in 1893 on the old bed of the Dee, where it was destroyed by the extension of the sidings; and I have seen it occasionally on refuse-heaps in other places around Aberdeen.

Adt. Ps. : B M (P) Nh D O. Locally abundant.

M. aquatica, L. (*M. hirsuta*, Huds.). Water Mint. Native in wet places.

"In humidis" (Skene). "Den of Rubislaw" (Knight and Cow).

This grows sparingly in Aberdeen, by the rivers Don and Dee ; but probably it was not uncommon before drainage of the marshes.

Adt. Ps. : B M P Nh D O. Rather local, but plentiful where it does occur.

M. sativa, *L.* Marsh Whorled Mint. A hybrid between *M. aquatica* and *M. arvensis*, but often more abundant than the parent species.

This has not been distinguished from *M. aquatica* in the local floras. They grow in similar habitats, and may sometimes be found intermingled. *M. sativa* grows in Aberdeen, beside the Don.

Adt. Ps. In all ; general in suitable habitats, and often plentiful by streams and in marshes.

M. arvensis, *L.* Field Mint. Native ; in damp pastures, from which it is apt to extend into the fields, and to become a troublesome and persistent weed in damp soils. Occasionally it occurs as a casual on rubbish-heaps.

“ Passim inter segetes ” (Skene). “ In fields at Kemhill ” (Cow).

In Aberdeen I have seen this only in small quantity in fields between Old Aberdeen and Woodside ; and I have seen it on rubbish on the Links.

Adt. Ps. In all ; locally common.

Thymus Serpyllum, *L.* Wild Thyme. Native on dry soils, among short pasture, especially on the Links, and on sandy banks by the Dee. Less frequent than formerly in Aberdeen, owing to limitation of suitable habitats.

“ Broadhill and Links ” (Cow).

Adt. Ps. Ng B M P : D O. Rather local, but plentiful in some places.

Calamintha Clinopodium, *Spenn.* Common Wild-basil. Native.

“ Rare near Aberdeen ; has been found on the Inch, at the Craiglug, and about the old Bridge of Dee ” (Fl. Ab. and B. G.). “ Riverside at Chain Bridge, August 1863 ” (J. Roy, in MS.).

I have never seen this in Aberdeen parish, where it has probably been extinct for a good many years.

Adt. Ps. : : M P : : : . On dry and rough banks along the valley of the Dee.

Nepeta hederacea, Trevis (N. *Glechoma*, Benth.). Ground Ivy. Near Aberdeen this is probably only a denizen, as it frequents the vicinity of houses, roads, and hedges. Possibly it may be a relic of former cultivation.

"Passim ad aggeres" (Skene). "Under hedges and in waste places, common; Rubislaw" (Knight). "Hilton; roadside west from Kittybrewster Toll; west side of King Street" (Cow).

Though of frequent occurrence, it can scarcely be called abundant in Aberdeen.

Adt. Ps. In all; local, but plentiful where it occurs.

Scutellaria galericulata, L. Common Skull-cap. Casual in Aberdeen; but native, though very local, in N.E. Scotland, the nearest localities for it being the coast two miles north of Stonehaven, where it has long been known, and the west end of the Loch of Park, where a patch was discovered, surrounded by swamp, by Messrs. A. C. Macrae and Macgregor Skene, in the autumn of 1906.

A clump appeared in 1895 on the west end of the ground inclosed from the old bed of the Dee for the extension of the railways. It may have been brought in railway ballast, but is not likely to have been of local origin, and was certainly not native where it grew. Though it throve well and spread for a time it was destroyed in the formation of a line of sidings in 1898. It grew in 1910 on rubbish in the old sandpit at Tillydrone.

Prunella vulgaris, L. Self-heal. Native; plentiful frequently in poor pastures.

"Passim in pratis et pascuis" (Skene). "Den of Rubislaw; Hilton; common in pastures west from Aberdeen" (Cow).

Still not uncommon on waste ground and in poor natural and artificial pastures in Aberdeen.

Adt. Ps. In all; common.

Stachys palustris, L. Marsh Woundwort. Native, in damp soils; local.

"Craiglug, 1835" (Dickie hb.). "Dam of Gilcomston" (Fl. Ab.).

Not abundant in Aberdeen; but in a few places by streams (Don, etc.). A troublesome deep-rooting weed in a few places, e.g., on the Market Stance, Old Aberdeen; here and there on waste ground and by railways; nowhere very common.

Adt. Ps. In all; rather local; but abundant here and there.

S. ambigua, Sm. A hybrid between *S. palustris* and *S. sylvatica*, variable in appearance, but usually nearer *S. palustris*.

"By the Dam of Gilcomston" (Cow, probably by mistake for *S. palustris*, which he does not mention).

I found this by the ruins of a cottage west of Rubislaw Bleach-field, in August, 1908.

Adt. Ps. : : (P) : : O. I have seen one or two examples by the Don below the Old Bridge. Cow records it from Cults and near Grandholm Mills; but probably for *S. palustris*.

S. sylvatica, L. Wood Woundwort. Native; by streams, and in thickets.

"In sylvis vulgatissima est; Stinking Day-nettle" (Skene). "Den of Rubislaw" (Harvey). "Donside above and below the Bridge" (Cow).

Common in places by the Don and in Rubislaw.

Adt. Ps. In all; locally abundant.

S. arvensis, L. Field Woundwort. Colonist near Aberdeen, as a weed in fields; but not common, and uncertain in appearance. Native in the Mediterranean area; widely dispersed as a weed of cultivated ground.

"Vulgatissima inter segetes et in cultis" (Skene). "Reid's garden; roadside near Chapel of Ease," Gilcomston, "passim" (Beattie). "Near Dee Village, 1835" (Dickie hb.). "In corn fields in some places, not common; on waste places near the Old Windmill, opposite the County-rooms; in a field at Hardgate, etc." (Cow). "Not frequent" (Fl. Ab.). "West side of Crown Street, in the hollow on the way to Ferryhill, 1864" (Roy, MS.).

This is now a rather scarce plant near Aberdeen, so uncertain and local as to suggest that it can scarcely establish itself even as a colonist. It was not uncommon in 1895 in a corn-field on the Market Stance, in Old Aberdeen, though scarce on the same ground both before and since that year; and in 1915 it was plentiful by the side of a field near Ardarroch Road. It occasionally appears on town-refuse on the Links, Ferryhill, etc. Skene's "vulgatissima" implies that the seeds were frequently introduced among the seeds of the cereals or other crops cultivated around Aberdeen about his time; but the plant has failed to establish itself here.

Adt. Ps. : : : P : : O. Very local, and nowhere common; much more frequent as a colonist in various parts of Buchan and other districts of N.E. Scotland at some distance from Aberdeen.

S. italica, Mill. Italian Woundwort. Casual on town-refuse, perhaps thrown out among siftings from grain brought from S. Europe, where it is native.

Found by me on the old bed of the Dee, in 1893, near flour-mills.

S. Betonica, Benth. Wood Betony. Native in Europe, including great part of Britain; but not so in Aberdeen.

"In woods, not common; in the Den of Rubislaw, rare" (Cow, as *Betonica officinalis*).

There is no other record of this species here, and there is considerable likelihood that Cow had mistaken the plant; but if correctly named, there is little doubt that it was an alien. It grows on a dry bank, by a private road, in Durris, near the garden of Durris House. It was sent to me from this locality in 1908 by Mr. A. Macdonald, who showed it to me growing, in autumn. It may have been introduced to this place, though it seems well suited to its surroundings. A former owner of Durris was interested in plants, and may possibly have brought this from southern Scotland.

Galeopsis speciosa, Mill. (*G. versicolor*, Curt.). Large-flowered Hemp-nettle. A colonist; plentiful in fields as a weed of corn-crops. Native of S. Europe, widely dispersed by agriculture.

"In cultis et in arvis" (Skene, as *G. Tetrahit*, from his description). "Corn-field off King Street, 1835" (Dickie hb.). "In corn-fields, not uncommon; fields at the Firhill-well, Powis Hermitage, Broadford, Rubislaw, etc." (Cow). "Not frequent" (Fl. Ab.).

This is common in fields around Old Aberdeen, and elsewhere about Aberdeen.

Adt. Ps. In all; generally common, and in some fields abundant.

G. Tetrahit, L. Common Hemp-nettle. Colonist; very common as a weed in fields in most parts of Scotland. Native in Central and Northern Europe, including England probably; and widely dispersed by man's aid.

"Passim in marginibus agrorum et frequentissime inter segetes" (Skene, as *G. Ladanum*).

Too plentiful to require citation of record or localities. It varies extremely in size, as well as in the colours and markings of the flowers.

Var. *bifida*, Boenn. Not uncommon, though less frequent in Aberdeen than in the country districts.

Adt. Ps. In all; a very common colonist.

Prasium majus, L. Casual. Native in the Mediterranean area, from which it may have been brought to Aberdeen, as a weed among cereals.

Several examples were found by me on town-refuse on Old Aberdeen Links in 1905 and 1909, and on the railway near Don Street Station in 1910, possibly from grain-siftings.

Sideritis montana, L. Casual in Britain. Native in the Mediterranean area, from which it has probably been brought as a weed of cereals.

It grew, as a weed in 1904, in a garden in Old Aberdeen, probably introduced with town-manure; and in 1906 several plants appeared on town-refuse on Old Aberdeen Links. I first observed it in Scotland, in 1899, on the banks and on shingle in the Spey, from Aberlour downwards. I was able to trace its presence there to grain-siftings cast on to the banks of streams out of the distilleries, chiefly from barley imported from E. Europe.

Lamium amplexicaule, L. Henbit Dead-nettle. Colonist, or weed of cultivated ground in Scotland, as wherever else it is known to grow.

"In cultis" (Skene). "On dry and sandy fields and in gardens; common in fields west of St. Machar's Church; in the garden of Gordon's Hospital; at Pitmuxton; on a waste place below the Barracks; at Kemhill, etc." (Cow).

General around Aberdeen; abundant in many fields and gardens, and also in waste ground and on refuse-heaps.

Adt. Ps. In all; rather local, but plentiful in places.

L. moluccellifolium, Fr. (*L. intermedium*, Fr.). Intermediate Dead-nettle. Colonist throughout Britain, as in the rest of Europe.

"In hedges and in fields, common; sides of fields at Ferryhill; in fields west of the Broadhill; in field and waste places in the Links-side at Footdee" (Cow).

Knight, Cow, Dickie and P. Macgillivray all refer to this species as *L. incisum*, a name now regarded as a synonym of *L. hybridum*, Vill. This latter species does not seem to grow in or near Aberdeen, though frequent here and there in S. Kincardine.

L. moluccellifolium is a common weed near Aberdeen.

Adt. Ps. Ng B M P Nh : O. Frequent in fields and gardens.

L. purpureum, L. Common Red Dead-nettle. Colonist. Native land uncertain; but very widely dispersed as a weed of cultivation.

"In agris cultis" (Skene).

Too plentiful as a weed in fields and gardens, on waste ground and on refuse-heaps, to require citation of records or of localities.

Adt. Ps. In all; plentiful.

L. album, L. White Dead-nettle. A very local denizen in Aberdeen, but abundant in a few places. Native in the Mediterranean region; esteemed formerly as of medicinal value, and probably dispersed by man.

Not known in Aberdeen to Skene, who says of this, "solummodo inveni Leithhall"; nor does Cow mention for it any locality nearer than Culter. Knight says, "Old Aberdeen, Broomhill, not common." Dickie (in Fl. Ab.) says, "By the road to Old Bridge of Dee; near the Nursery in the Links, etc., not common." "In waste places near St. Machar's Church" (Polson hb.).

It is now abundant behind walls along the road from Tillydrone to Hayton. It used to be common by the Hardgate; but it has been almost extirpated by changes in that part in recent years.

Adt. Ps. : : : P : : O. Local and not common.

L. maculatum, L. Spotted Dead-nettle. Scarcely more than a casual in Aberdeen, probably as an outcast from gardens. Native in S. and Central Europe.

Occasionally on waste ground, e.g., in an old sandpit, near Tillydrone.

Teucrium Scorodonia, L. Wood Germander. Native, on rough banks.

"In woods and dry stony places, in the Den of Rubislaw; on Donside, abundant; at Hilton" (Cow).

It is plentiful beside the Don, on rough banks in Seaton; and I have seen it sparingly on old heaps of quarry-refuse near Hilton and in Rubislaw, and also by the Dee at Allenvale.

Adt. Ps. In all; locally plentiful on dry rough banks.

T. Chamædryas, L. Wall Germander. Native in the Mediterranean region and in Central Europe. Grown sometimes as a wall-plant.

"Garden walls, Rubislaw" (Beattie). "Rubislaw, 1856" (Beveridge hb.).

A large clump continued to grow in a semi-wild state in the old and ruinous wall of the garden attached to the old House of Rubislaw until 1887, when the wall was demolished, and the plant perished. Cow records it "on Donside, above the Bridge, sparingly," but there is little doubt that the record is erroneous.

Ajuga reptans, L. Common Bugle. Native in woods and moist pastures, by streams.

"In pratis humidiusculis" (Skene). "Den of Rubislaw; Donside above the bridge" (Cow).

Still to be found in the Den of Rubislaw, and in various places near the Don; but it is not common in Aberdeen now as the habitats suited to it have been much restricted by drainage and otherwise.

Adt. Ps. In all; rather local.

PLANTAGINACEÆ.

Plantago major, L. Greater Plantain. Native in pastures and in waste ground; also a common weed in lawns and other cultivated ground.

"Passim ad vias" (Skene). "College Court; by all waysides etc." (Knight).

Too general and frequent to require citation of records or of localities.

Adt. Ps. In all; very general and common.

Var. *intermedia* (Gilib.). Occasionally on town-refuse, etc., on Old Aberdeen Links and in Rubislaw, probably from imported seeds; rare as a weed in fields. First observed by me near Aberdeen in 1904; apparently not native here.

P. media, L. Hoary Plantain. Scarcely more than a casual in lawns in the neighbourhood of Aberdeen, from seeds imported with grasses; though native in England, and probably so in S. Scotland.

"Very rare in the district. Formerly in a field near Marine Terrace" (B. G.).

I have several times seen it in lawns in Aberdeen, e.g., at Gordon's College and in the Cruickshank Botanic Garden, evidently brought with the grass seeds. It seems unable to become a denizen, or even a successful colonist, here.

Adt. Ps. : B M P Nh : O. Casual and rare. I have seen it growing singly in lawns at Daneston, in O (in July, 1913). Also in M, and in July, 1915, at Craibston House in Nh, and have seen a dried example gathered in P in 1907, also a living specimen gathered in B in May, 1917.

P. lanceolata, *L.* Ribwort Plantain; "Carldoddies," "Soldiers," or "Sodgers." Native; abundant in pastures, natural and artificial, especially so in lawns, also on waste ground, roadsides, rubbish-heaps, etc.

"Passim in agris et ad vias" (Skene).

Too plentiful to require citations of records or of localities. This species varies greatly in size, form, and margins of the leaves, hairiness, and tendency to procumbent or erect growth of leaves and stems; and it differs even more in the length and proportions of the flower-heads, as also in the relative development of stamens and carpels. The flower-heads are frequently branched, and very often they have the bracts leaf-like; so that occasionally the head is replaced by a cluster of leaves, among which are a few flowers, or small stalked flower-heads, which may repeat the abnormal structure. These peculiar forms are more common in some years than in others, and are more often met with on refuse-heaps, or in other places where the soil contains more food materials than usual. They were exceptionally frequent in the autumn of 1907. I have found that seedlings of affected plants show a tendency to reproduce the abnormal conditions.

Adt. Ps. In all; abundant.

Var. *Timbali* (Reichb.). I found one plant of this form on the football ground on Old Aberdeen Links near East Seaton in August, 1909, probably from seeds among town-refuse.

P. maritima, *L.* Sea plantain. Native on the sea-coast; but not confined to the coast, as it is frequent on exposed ground, e.g., roadsides in many inland places.

"Inches; Deeside below the Old Bridge, etc." (Knight). "On the sea-coast and on dry pastures, common; on Deeside, below the Bridge; on the Inch; on the Links, plentiful" (Cow).

Still plentiful on the Links, and on the south bank of the Dee, near the sea, as also on the coast south of Aberdeen; also here and there by roadsides inland. The Sea Plantain varies much in size, in hairiness, in width, and margins of leaves, and in length of the

flower-head ; and it also may have the bracts more or less leaf-like, and may transmit this structure.

Adt. Ps. Ng B M P : : O. Locally plentiful.

P. Coronopus, *L.* Staghorn Plantain. Native on sea-coast and by estuaries ; never away from the vicinity of the sea in this district.

“ Passim in campis maritimis ” (Skene). “ Old Aberdeen Links ” (N. Fl.). “ On the Inches ” (Cow).

Abundant on the low part of Old Aberdeen Links near the Don, less frequent on the inner dunes ; scarce now by the Dee, except on the south bank east of Torry ; plentiful on the rocky coast south of Aberdeen. The leaves of this species vary extremely in form, segmentation and hairiness, these characters differing among plants growing close together, and still more between those from different localities ; but they scarcely afford well-defined varieties.

Adt. Ps. Ng B : : : O. Confined to sea-coast.

P. arenaria, *W. K.* Casual in Aberdeen, introduced with grass seeds. Native in Central and S. Europe, and in S.W. Asia.

In 1894 several examples were found by me on a newly formed slope recently sowed with grass, with which the seeds had no doubt been brought, round the football ground between the Broad-hill and the sea.

Littorella uniflora, *Aschers. (L. lacustris, L.)*. Plantain Shoreweed. Native on muddy shores of streams and pools, or growing under water ; but flowering only when exposed to air.

“ Rubislaw ” (Beattie and Knight). “ Wet banks on the south side of the Don and the Links ” (Cow). “ Stocket Moor ” (Fl. Ab.).

This still grows on the wet stony margin of the Don below the Old Bridge ; but it seems to have disappeared from the other localities named. It was probably not uncommon in Aberdeen before drainage altered the surface.

Adt. Ps. Ng B M P : D O. General in suitable habitats ; plentiful in some localities.

APETALÆ or MONOCHLAMYDEÆ.

ILLECEBRACEÆ.

Scleranthus annuus, *L.* Annual Knawel. Probably native on dry banks though so much more common and vigorous as a weed

among cereals and other field-crops as to show that its dispersal has been greatly aided by agriculture.

“*Perfrequens incola arvorum*” (Skene).

General, and often a plentiful weed in fields.

Adt. Ps. In all ; a common weed of cultivated ground, as well as general and frequent on bare dry situations suitable for it.

AMARANTACEÆ.

Amaranthus retroflexus, L. A rare casual in Aberdeen. Native on prairies in S. Central states of the U.S., America.

Found by me in 1889 by the Dee, in Torry ; also in 1891 and in subsequent years on town-refuse on the Links, possibly from seed-shops or grain-siftings.

CHENOPODIACEÆ.

Chenopodium polyspermum, L. Many-seeded Goosefoot. Casual in Aberdeen. Native in Europe, including S. England ; dispersed widely as a weed of cultivated ground.

“Common on the Inches ; at Footdee and Torry, etc.” (Cow).

Cow had evidently not known the plant, rendering his record worthless. I have seen it only as an extremely rare casual on town-refuse, on Old Aberdeen Links.

C. Vulvaria, L. Stinking Goosefoot. Casual in Aberdeen. Native in Europe, probably including S. England ; but only an introduced weed of cultivated and waste ground in Scotland.

Near Aberdeen I have seen only one or two examples on town-refuse, since 1905, on Old Aberdeen Links.

C. album, L. White Goosefoot. A colonist ; very common as a weed in arable land and in places rich in organic matter, such as dung-stances. Though so widely diffused as a weed of cultivation, its native land is uncertain.

“Most abundant” (Knight).

Too general and abundant a weed to require citation of records or localities. The following varieties occur in Aberdeen ; all of them being fairly common here :—

incanum, Moq. (*candicans*, Lam.),

viride, Syme, and

viridescens, St. Am. (*paganum*, Reichb.).

Adt. Ps. In all ; common. The distribution of the varieties has not been recorded for the several parishes.

C. leptophyllum, Moq. Native on the Pacific slope of the U.S., America, and dispersed eastwards as a weed of cultivated soil. Very distinct in aspect from any of the European forms of *C. album*, of which it is by some regarded as a variety.

Since 1903 I have frequently found this form in some quantity on town-refuse on Old Aberdeen Links, etc., also on the old bed of the Dee, and in sand-pits around Aberdeen; but I have not seen it outside the parish except on rubbish-heaps near Kintore Station. It flowers late, and seems rarely, if ever, to ripen seeds here; hence its occurrence each year must be due to the introduction of fresh seeds, probably in grain-siftings from American importations.

C. opulifolium, Schrad. Casual in Aberdeen. Native on waste ground and by roads in Central Europe and in the Mediterranean region.

One or two found by me on town-refuse, in 1893, on the old bed of the Dee, and in 1905 on Old Aberdeen Links.

C. serotinum, L. (*C. ficifolium*, Sm.). Fig-leaved Goosefoot. Casual in Aberdeen. In cultivated ground, by roadsides, etc. In Central Europe and in the Mediterranean region.

Occasionally found by me during the years since 1905 on town-refuse on Old Aberdeen Links, and also near the Railway Stations of Aberdeen and Kintore; a rare plant near Aberdeen.

C. rubrum, L. Red Goosefoot. A frequent casual, apparently becoming a colonist. Native in Europe, including the shores of England; dispersed very widely as a weed of cultivation.

"Ground west of Bonaccord Street, abundant" (Harvey). "Not uncommon" (Knight). "On the Inch, etc., not frequent" (Fl. Ab.).

There is doubt, in the absence of specimens gathered and named by these botanists, whether their records relate correctly to *C. rubrum*. It is now rather frequent on town-refuse on Old Aberdeen Links, in Rubislaw, and elsewhere around Aberdeen.

C. urbicum, Cow, non L. Upright Goosefoot.

"On waste places and waysides; in fields near the Broadhill; on waste places and roadsides from Dee Street; in fields east from Gallowhill, etc." (Cow).

This record is certainly erroneous. I have never seen a single example of the species, living or dried in or from Aberdeen. Cow must have mistaken for it some form of *C. album*.

C. Botrys, L. Casual in Aberdeen. Native on sea-shores and by rivers in Central Europe, and in the Mediterranean region ; dispersed elsewhere as a weed of waste places and of roadsides.

Once found by me, in 1905, on town-refuse, on Old Aberdeen Links.

C. Bonus-Henricus, L. Good King Henry, or Mercury Goosefoot. Denizen. Perhaps native among the mountains of S. Europe ; long in cultivation as a useful herb, and widely dispersed in this way, often escaping and becoming a weed in waste ground, by roadsides, etc.

"On a waste place at Stocket-head ; on the west wall of Old-town Churchyard ; in Sheriff Moir's burying-ground, Spittal" (Cow). "Roadside at Mile-end, Stocket, etc., not frequent" (Fl. Ab.).

This species appears to have become less frequent in Aberdeen than it formerly was, and than it still is in many places in the neighbouring counties. I have seen it growing in Gilcomston by a road, and in an old sand-pit near Tillydrone. Its disappearance from several of the localities quoted above is probably due to extension of streets and roads, as it usually is well able to hold its place if not destroyed by man.

Adt. Ps. : : : Nh (D) O. Scarce. By the roadside not far from the Bishop's Loch, close to houses, also near Bucksburn and Dyce.

Beta maritima, L. Sea Beet. Native of the shores of S. and W. Europe, including England and S. Scotland. A rare casual in Aberdeen.

"On the Inch ; rare" (Fl. Ab.), probably from ballast.

Once found by me, in 1903, on a newly formed slope, made up of town-refuse chiefly, by the road on the coast north of the Bathing Station.

B. vulgaris, L. Common or Garden Beet. Not uncommon on town-refuse. Native of sea-shores of Europe ; long in cultivation, and widely dispersed as an outcast or casual ; but soon disappearing.

Occasionally on the Links and elsewhere on refuse around Aberdeen.

Atriplex littoralis, L. Grass-leaved Sea Orache. A rare casual in Aberdeen ; but native of salt-marshes over much of the N. Temperate zone, including Southern Britain.

"Formerly on the Inch, opposite the dockyards; introduced in ballast" (Fl. Ab.). "Estuary of the Dee, Dr. Macgillivray" (P. M.)

Only once found by myself in Aberdeen, in 1904, on a rubbish-heap beside the road on the sandhills, north of the Bathing Station.

A. patula. Under this name are included in the published local lists more than true *A. patula*, L., the former records for Aberdeen being as follows: "In cultis" (Skene). "Fields and wastes, frequent, but less so in the more inland parts" (B. G.). The forms here included are common as apparently native plants in many places on the coast, and are even more plentiful as colonists around dung-stances, in cultivated soil, and elsewhere in soils rich in certain materials that favour their growth.

Under *A. patula* were included formerly in our lists the following:—

A. patula, L. Narrow-leaved Orache, with varieties
erecta, Huds. and
angustifolia (Sm.).

A. hastata, L. Triangular-leaved Orache.

Adt. Ps. Both species occur in all the adjacent parishes.

A. Babingtonii, Woods. Spreading-fruited Orache. Native; on coasts.

"Frequentissima ad maris littora" (Skene, under *A. patula*).
"Along the coast; not unfrequent" (Knight, as *A. laciniata*).
"Sea-shore, frequent, and perhaps along the whole coast-line" (B. G.).

It is very common on both sandy and rocky coasts. Var. *virescens*, Lange, is common with the type.

Adt. Ps. Ng B : : : O. Both type and variety, common along sea-coast.

A. laciniata, L. Frosted Sea Orache. Only a casual near Aberdeen; but native on sea-coast both south and north of this vicinity.

Published records of *A. laciniata* for the neighbourhood of Aberdeen refer to *A. Babingtonii*, which was mistaken for it. In 1905 I found an example of *A. laciniata* on the sandy beach east of the Broadhill; and in 1906 a few plants grew on town-refuse spread on Old Aberdeen Links to form the new football ground near Linksfeld.

It has not as yet been observed in the adjacent parishes on the sea-coast; yet it is common on sandy beaches along the south coast of the Moray Firth, and is also met with in Forfarshire.

Spinacia oleracea, L. Possibly native in Afghanistan; widely dispersed as a pot-herb, cultivated in gardens; apt to appear as a casual on town-refuse and other rubbish, e.g., on Old Aberdeen Links.

Salicornia herbacea, L. Jointed Glasswort. Native on muddy shores of estuaries; but long extinct near Aberdeen.

"Saltish pools near Donmouth" (Knight). "Near the mouth of Don" (Harvey).

As these are the only local records, the species had probably been rare near the Don, and had ceased to exist there before 1830; otherwise it would certainly have been mentioned by others. As *Salicornia herbacea* and *Suaeda maritima*, Dumort., are abundant in the estuaries of the South Esk and North Esk, and are also fairly common in a part of the estuary of the Ythan, the rarity of the one and the absence of the other around Aberdeen are rather difficult to account for, as the former conditions in the estuaries of both the Dee and the Don appeared quite as favourable to them as where they grow.

Salsola Kali, L. Saltwort. Native on sandy (less often on pebbly) sea-coasts; becoming less frequent near Aberdeen.

"In no great plenty in the loose sands opposite to the Roperie, August 1, 1763" (Skene). "On the sea-coast between Dee and Don" (Cow). "Occasionally from Aberdeen to Donmouth" (B. G.).

It may still be found on this coast; but in recent years it has become rare between the Dee and the Don.

Adt. Ps. Ng : : : : O. Only once found by me in Nigg, in October, 1907, near the South Breakwater. It is not common north of the Don, at least for several miles distance.

Var. *Tragus*, L. Russian Thistle.

Of this very marked form, by some regarded as a distinct species, I found a single example on the rubbish used to fill up the old bed of the Dee near the Railway Station. The seed had probably been thrown out among grain-siftings, possibly from S.E. Europe, or possibly from N. America, where it has become a pest of cultivated fields.

POLYGONACEÆ.

Polygonum Convolvulus, L. Climbing Buck-wheat, or Black Bindweed. A plentiful colonist in Scotland, in fields; less frequent in garden and on waste ground. Native in Asia and in parts of Europe, perhaps including England; widely dispersed as a weed of cultivation.

Not mentioned by Skene. "In corn-fields and waste places, common" (Knight, Cow, Dickie, and P. M.).

Common near Aberdeen; often a rather troublesome weed from its habit of twining round other plants. Var. *subalatum*, Lap et Court, is not uncommon about Aberdeen.

Adt. Ps. In all; common.

P. aviculare, L. Common Knot-grass. Native on dry pastures and in similar places where the vegetation is scanty; but much more abundant and vigorous as a weed of agricultural ground and gardens, or on town-refuse and other rubbish where is rich nourishment. Extremely variable in such places, some of the varieties having probably been introduced among agricultural seeds.

"Ubique in incultis" (Skene).

Far too general and plentiful to require further citation of records or of localities.

The following forms have been found by me near Aberdeen:—

agrestinum (*Jord.*),

vulgatum, *Syme*,

arenastrum (*Bor.*) on light soils, and

littorale (*Link*) on the sea-coast, especially where sandy.

This variety is certainly native here, and is more common on other parts of the coast.

Adt. Ps. In all; common, often abundant.

P. Bellardii, All. Native in S. Europe.

In September, 1917, I found a large plant in flower and fruit on town-refuse in the district of Ferryhill—

P. equisetiforme, Sibth. Native in S.E. Europe and the Mediterranean region.

In recent years a not infrequent casual on town-refuse in Aberdeen parish, probably from seeds imported among cereals. It was first observed here by me in 1893, on the old bed of the Dee; but I have since found it on Old Aberdeen Links and elsewhere, always on rubbish.

P. Hydropiper, *L.* Biting Persicary, or Water Pepper. Native in wet places, but very local near Aberdeen; now extinct within the parish, so far as my information goes.

"In locis humidis" (Skene). "Dam of Gilcomston" (Knight and Harvey). "Den of Rubislaw; very abundant at Justice-mill Dam, which being now filled up the plant is extirpated" (Fl. Ab. and B. G.).

I have a note of having found one or two plants in September, 1879, on the wet north part of Old Aberdeen Links; but I had not again seen it within our limits until 1908, when I found one or two, evident casuals, on town-refuse deposited near East Seaton. In 1914 several plants were growing by the Dee above Allenvale.

Adt. Ps. Ng B M P : : O. Very local; but abundant in a few places, e.g., in the upper dam in Den of Leggat. In September, 1916, I found a number of plants on the island in the Don above the New Bridge.

P. minus, *Huds.* Small Persicary. Native in wet places; extremely local in N.E. Scotland, though plentiful in the one or two places in which it occurs.

"Gilcomston Dam" (Knight).

There is no other record for its occurrence within Aberdeen; nor is it included in any published flora of this district.

Adt. Ps. Ng : : : : . Plentiful on the margins of the Loch of Loirston (where it was first observed by me in 1891), and around a pool east of the loch. It grows intermingled with *P. Persicaria*; and hybrids between the two are frequent there.

P. Persicaria, *L.* Spotted Persicary. Probably native in a few places on wet ground, e.g., round the Loch of Loirston; but much more plentiful and general as a colonist in cultivated soils, round manure heaps, and in similar rich soils.

"Passim in arvis, viis" (Skene).

Too common a weed of cultivation to require citation of records or of localities.

Adt. Ps. In all; abundant as a weed in fields and gardens.

P. lapathifolium, *L.* Pale-flowered Persicary. A not common weed of fields and gardens (colonist) and on waste ground; occasionally, but rarely on the sides of ponds and ditches, where it may perhaps be native in this part of Scotland.

"West end of the nursery at the Links, on a dunghill, 1835"

(Dickie hb.). "Dam of Gilcomston, rare" (Cow). "On the Inch" (Fl. Ab.).

More frequent in Aberdeen as a casual on refuse than as a colonist, though an occasional weed in most fields and on waste ground.

Adt. Ps. Ng : M P Nh D O. Not common ; prefers damp soils.

Var. *tomentosum*, Schrank.

With the type, and as frequent in some localities, especially on the damper soils ; but more local ; more often in the valley of the Dee than elsewhere in this neighbourhood. I have seen it within Aberdeen parish, on refuse on Old Aberdeen Links.

P. amphibium, L. Amphibious Bistort. Native ; more often in damp or wet soils or floating in water ; but not uncommon in dryer ground.

"In fossis, in aqua, et ad ripas" (Skene). "Canal below bridge in King Street, Firhill well, abundantly" (Beattie). "On the Canal banks near Footdee ; in the Milldam of Gilcomston ; on wet pastures, west side of the Links, north of the Broadhill ; side of a marsh south from Donmouth" (Cow). "Abundant in the Canal" (Fl. Ab.).

The water form (*aquaticum*) no longer exists in any of these habitats, as all have been drained, and it has become rare locally ; but the land form (*terrestre*), though rather local, is still fairly plentiful in several places within Aberdeen, e.g., by roadsides between Merkland Road and the Don, near Tillydrone, etc. The land form shows both hairy and almost glabrous varieties near Aberdeen.

Adt. Ps. In all ; locally common, especially as the land form.

P. Bistorta, L. Common Bistort, or Snake-root. A denizen in Aberdeen, plentiful in a few favourable habitats ; native in N. Europe, probably including S. Scotland ; often cultivated in gardens formerly, and readily distributed from them, establishing itself as a denizen.

"Aberdeen Links" (Beattie). "Old Aberdeen" (Knight). "Side of a small pond east from Powis Hermitage ; in the Den of Rubislaw" (Cow). "In a wood near Powis" (Fl. Ab.).

It has disappeared from several of these localities, e.g., Old Aberdeen Links ; but it is still plentiful in the Den of Rubislaw. It is also abundant by the north avenue in the grounds of Seaton ;

and there are small patches in several places, e.g., by the railway near Holburn Street, near the Rubislaw Bleaching Works, etc.

Adt. Ps. In all; a local denizen, occasionally plentiful.

P. viviparum, L. Viviparous Bistort, or Alpine Bistort. Native in this district, though not common close to Aberdeen; in drier natural pastures usually.

In October, 1907, I found a few plants on the rough bank of the Dee east of Torry.

Adt. Ps. Ng : : P : : . Plentiful on braes near the Dee, above the Burn of Culter. Probably it grows in almost every part of Deeside.

P. cuspidatum, Sieb. et Zucc. Native in Japan; cultivated in many gardens about Aberdeen, and often appearing as an outcast on waste ground. It appears not unlikely to establish itself as a denizen in suitable habitats by streams and in thickets.

I have seen it partially established on waste ground near the Railway Station, on rubbish in Ferryhill and near Tillydrone, and on sites of former gardens in Rubislaw. I have also seen it, still more like a wild plant, in different places in the district around Aberdeen.

Fagopyrum esculentum, Moench. Common Buckwheat. Native in Central Asia; very widely dispersed as a cultivated plant, and also as a weed among other crops, e.g., tares.

In Aberdeen a casual on town-refuse; less often as a weed among tares, cereals, etc. On the old bed of the Dee, on Old Aberdeen Links, near Old Aberdeen, etc.

Adt. Ps. : : : : : O. A rare casual.

F. tataricum, Gaertn. Tartarian Buckwheat. Native in Central and N. Asia, but widely dispersed as a weed of cultivation. Casual in Aberdeen.

Two or three plants were found by me on Old Aberdeen Links, in 1903, on town refuse, probably from grain-siftings.

Oxyria digyna, Hill. Mountain Sorrel. Native by the Dee; plentiful inland, and growing on shingles and rocky banks from seeds brought by the river, but much rarer near the mouth of the Dee.

Very rare on shingles below the Bridge of Ruthrieston.

Adt. Ps. : B M P : : . Only by the Dee.

Rumex conglomeratus, *Murray*. Sharp-leaved Dock. Native in Scotland.

"Moist places. I believe this to be frequent in the district" (B. G.). "Several places near Aberdeen, Mr. J. Farquharson" (Nat. Hist. of Deeside).

Possibly these records refer to *R. acutus*, mentioned below. *R. conglomeratus* is one of the rarest docks in this vicinity; and I have seen it in Aberdeen only on town refuse, once by the new road from School Road to the Links in 1914, and once near Pittodrie in 1916.

R. sanguineus, L. Bloody-veined Dock. Native in Scotland.

"Old wall at King's College, rare" (Knight). "On the Inch" (Fl. Ab.; not mentioned in B. G.).

I have not seen this nearer Aberdeen than Garlogie Mill, in Skene; nor have I seen a local specimen in any herbarium. Cow's judgment with regard to the species of *Rumex* cannot be trusted; and the habitat on the Inches appears not to have satisfied Dickie. Its occurrence in Old Aberdeen was probably casual only. Further confirmation of its existence within the parish is required before it can be admitted into our flora. Both the type and var. *viridis* (Sibth.) grow in Dunottar parish, near the Carron, near the old castle of Tolquhon in Udny, and in other localities in the counties of Aberdeen and Kincardine as native plants.

R. maritimus, L. Golden Dock. Native in marshes and on muddy river banks in the greater part of Europe, including S. England. Casual about Aberdeen.

"Near Donmouth" (Knight). "Banks of the Don near the sea. Rare" (Fl. Ab.); not mentioned in B. G., hence probably a misnomer.

Once found by me on town-refuse, on Old Aberdeen Links, in 1905; and once by Mr. John Reay at Craiginches in Nigg, in 1906.

The hybrid (*limosus*, Thuill.), with *R. conglomeratus*, was once found by me as a casual on the old bed of the Dee, near the railway, in 1896.

R. pulcher, L. Fiddle Dock. Scarcely more than a casual in Aberdeen. Native in Asia, and probably in Europe; widely dispersed as a weed along roads and on waste ground, and to a less extent in fields.

"On a wall in College Lane" (Cow). "Walls opposite King's College, 1839" (Dickie hb.).

I find it occasionally on town-refuse and waste ground, e.g., on the old bed of the Dee, in 1900, and on Old Aberdeen Links, from 1903 onwards.

R. obtusifolius, *L.* Blunt-leaved Dock. Native, usually preferring moist pastures; but more common as a weed of waste places near houses, by roads, etc.

"Passim ad vias et aggeres et in pascuis" (Skene, probably including more than the one species under the name).

Too general to require citation of records or localities. Two varieties grow here:—

Var. **Friesii** (*Gr. et Godr.*), the more common, varying much in the degrees of toothing of the fruiting sepals, and

Var. **sylvestris** (*Wallr.*), more local and less plentiful.

Adt. Ps. In all; common.

R. crispus, *L.* Curled Dock. Native; often associated with the other docks as roadside weeds.

"On waysides and waste places, abundant" (Cow).

Very general. On the sea-coast it is the most common dock, usually as the variety *trigranulatus*, Syme. Var. *subcordatus*, (Warren), occasionally occurs here.

Adt. Ps. In all; frequent.

R. domesticus, *Hartm.* (*R. aquaticus*, auct. angl., non *L.*). Grainless Water Dock. Native by sides of streams and in wet pastures; but still more plentiful as a weed of waste ground near houses and roads, and as a weed of cultivated soils.

"Rather plentiful about Robslaw Quarry, etc." (B. G.).

Too general to require citation of localities.

Adt. Ps. In all; plentiful.

Hybrids between *R. crispus*, *R. domesticus*, and *R. obtusifolius*. Where two of these species, or all three, grow intermingled, as they frequently do around Aberdeen, hybrids very frequently appear, showing different grades of resemblance to one or other of the species, often being hard to determine with certainty. Where the three species grow together there is the greatest difficulty with the hybrids. Hybrid origin is indicated frequently by greater height than the parents, intermediate form, toothing and granulation of

the inner sepals in fruit, and the more open condition of the fruiting panicles, owing to many of the fruits falling off without ripening.

I have found the following hybrids in and around Aberdeen, besides others less clearly defined, and which are probably the produce of hybrids crossed with the species:—

domesticus × *obtusifolius*, first noted from Scotland by Dr. J. Boswell Syme as *R. conspersus*, Hartm. This is common in N.E. Scotland.

crispus × *obtusifolius* (*R. acutus*, L., *R. pratensis*, E.B.S.). This also is fairly common around Aberdeen, and is probably the dock intended in the records under *R. conglomeratus*, already quoted, as well as under the name *acutus* by Knight, who says it is "common" and by Cow, "on a waste place north side of King's College; on a waste place at Union Place."

crispus × *domesticus* (*R. propinquus*, Aresch.). This is the least frequent of the three hybrids; and it approaches certain varieties of *R. crispus*. I have met with the undoubted hybrid in Aberdeen but not often.

Adt. Ps. Ng : : P Nh D O. Usually rare; but not uncommon by a field near Stoneywood.

R. Acetosa, L. Common Sorrel, or "Sourocks." Native; abundant in pastures, on waste ground, by roads, and in cultivated soil, at times as a troublesome weed.

Adt. Ps. In all; frequent.

R. Acetosella, L. Lesser or Sheep's Sorrel. Native; especially abundant in light poor or acid soils, in which it spreads rapidly by buds, emitted from the true roots; often a very troublesome weed.

Adt. Ps. In all; abundant.

Var. *multifidus*, L. Native in S.E. Europe. Casual in Aberdeen.

Of this variety, characterised by the leaf bearing several lobes behind, instead of having the usual hastate form, I found a vigorous example on town-refuse on Old Aberdeen Links, in 1904. It may perhaps have sprung from a seed brought among cereals from the Mediterranean.

R. bucephalophorus, L. Casual. Native in the Mediterranean region; on waste ground, or as a weed on cultivated soil.

Several examples of this small annual weed were found by me, in 1903, on a slope north-east of the Broadhill, newly sown with grass. The seeds may have been introduced with the grass-seeds, or with the town-refuse used to make the slope.

EUPHORBIACEÆ.

Euphorbia Helioscopia, L. Sun Spurge. Colonist in and around Aberdeen, often plentiful as a weed in arable ground. Native country uncertain as it is now known only as a weed of cultivation; but its seeds have been identified in interglacial deposits in England.

"In cultis" (Skene). "Rubislaw, 1834" (Dickie hb.). "In a field west of the Old-town; in fields at North-head braes; about the Gallow-hill, etc." (Cow).

Less frequent in gardens than in fields.

Adt. Ps. In all; frequent in corn-fields and among root-crops.

E. Peplus, L. Petty Spurge. Colonist as a weed, local, but plentiful in some gardens, less often in arable ground or among root-crops. Native country uncertain; but widely dispersed as a weed of cultivated ground.

"In cultis" (Skene). "On waste places and in gardens, not common; at Gordon's Hospital; in fields above Gilcomston, rare" (Cow).

In Old Aberdeen, Rubislaw, Ferryhill, etc.; abundant in some gardens; but less frequent and general than *E. Helioscopia* near Aberdeen.

Adt. Ps. : : M P Nh : (O). Local and seldom common.

E. Cyparissias, L. Cypress Spurge. Alien in Scotland. Native in Europe including England, near Dover.

"In the Den of Rubislaw; very rare about Aberdeen" (Cow).

There is no other local record for this Spurge, which is occasionally to be seen in old gardens in this district. If rightly named, the plant found by Cow must have been an outcast, or possibly planted.

Mercurialis perennis, L. Perennial Dog's-mercury. Native, usually under the shade of trees.

My only record for this species within Aberdeen is the result of a special search in 1903, to ascertain whether it had become lost to

the local flora, in which it had formerly been as common in the suitable habitats as it still is, in a few places in most of the adjacent parishes. The only examples met with were a few on the rough bank of the Don in Seaton, a little way above the Old Bridge, and by the Don near the Paper Works at Woodside.

Adt. Ps. : B M P Nh (D) O. Plentiful on the north bank of the Don above the Old Bridge; and also in places to the west of the parish.

Buxus sempervirens, L. Common Box. Alien in Scotland; but largely grown in gardens and shrubberies. Native in the Mediterranean region and in Central Europe, including S. England.

Occasionally in Aberdeen and neighbouring parishes, apparently wild, on waste ground, near old buildings, etc.; but almost always as a relic of former cultivation.

URTICACEÆ.

Urtica dioica, L. Common or Great Nettle. So commonly dispersed in the Temperate Zones by man's aid that its native country is uncertain.

“Ad vias et ubique” (Skene).

Too plentiful near houses, by roads, on waste ground, etc., to require records or localities; but its distribution in the N.E. of Scotland is such as to suggest that it is a successful denizen, introduced by man long ago, accidentally, or as a useful potherb and source of fibre, properties for which it was esteemed formerly, though now superseded by other plants.

Adt. Ps. In all; plentiful.

U. urens, L. Small or Annual Nettle. Colonist near Aberdeen. Widely dispersed as a weed of cultivation, its native country uncertain.

“Ubique in ruderalis” (Skene). “On waste places, and dung-hills, common at Torry and the fish-town of Footdee; on waste places about the flesh-market, and at the Bridge of Dee, etc.” (Cow). “Old Aberdeen, etc.” (Knight).

Plentiful in several parts of Aberdeen, though local near houses and roads, by borders of fields under annual crops, etc.

Adt. Ps. Ng B; P Nh D O. Decidedly local; common in places.

[*Parietaria ramiflora*, Moench. (*P. officinalis*, L., in part). Wall Pellitory.] Native in Europe, including S. Britain; but only a denizen in N. Scotland, on old buildings, chiefly on ruins. Not recorded from Aberdeen, the nearest locality being garden wall, "Pitfodels;" a note by Prof. Beattie, but not of any later botanist.

CANNABINACEÆ.

Humulus Lupulus, L. Common Hop. Occasionally in hedges, and less often in thickets in the district around Aberdeen, the result of former cultivation or as an escape. Native of great part of Europe, Asia, and N. Africa; and dispersed also by cultivation.

"Stocket" (Beattie).

Not frequent in Aberdeen, though it grows as a rare denizen by the Don, and may be seen as a relict of cultivation where gardens have been abandoned before the extension of streets, e.g., in Rubislaw.

Adt. Ps. : B (M) P Nh : O. Alien; but well established here and there.

Cannabis sativa, L. Hemp. Casual; frequent on town-refuse, and occasionally near houses or by roads. Native in Central Asia; diffused by cultivation over the Temperate and Warm Zones.

It is one of the casuals most often met with near Aberdeen; but it seldom reappears in the same place unless from seeds newly thrown out, as it does not ripen seeds here. Its frequency is probably due in great part to the use of the fruits as food of caged birds. It occasionally may be found as a weed among tares and other crops.

Adt. Ps. Occasionally, but less common than around Aberdeen.

ULMACEÆ.

Ulmus glabra, Huds. (*U. montana*, Sm.). Scotch Elm or Wych Elm. Common, and apparently native around Aberdeen; but may be a denizen. Native in Europe, including Southern Britain and Asia. Often planted, and readily dispersed by the winged fruits, springing up in places where it appears to be wild.

Frequent in Rubislaw, near Hilton, by the Don, and elsewhere about Aberdeen, it is usually in hedges and plantations or shrubberies, where trees had evidently been planted. If not native here it has been long a denizen.

Adt. Ps. In all; frequent.

U. campestris, L. Common Elm. Alien; native in great part of Europe and in Asia.

It is less frequent about Aberdeen than the Scotch Elm, and is less often seen where it had probably been self-sown.

MYRICACEÆ.

Myrica Gale, L. Bog Myrtle, or Sweet Gale. Native in the surrounding country, in abundance in many places, and probably was so on the swampy moors that covered so much of the parish formerly; but I have not been able to find it in any old collection, while the only reference to it here is by Cow, who says of it: "In a meadow east and west the Snow Churchyard, abundant." The only "Snow Church" in this neighbourhood, so far as I am aware, is that which formerly stood in Old Aberdeen; so that Cow appears to refer to the low stretch of ground near the Powis Burn, west of College Bounds. This seems very likely to have been a suitable habitat in former times; but in view of the silence of Skene, Knight, Harvey, and Dickie as to its occurrence near Old Aberdeen, there is reason to believe that Cow's statement was erroneous. Certainly the shrub could not have been "abundant" there in 1836, when his list was printed.

Adt. Ps. (Ng) : M P Nh (D) O. Very local; more plentiful inland.

BETULACEÆ.

Betula alba, L. Common Birch. Birches have left abundant remains in the peat-mosses that exist below the streets and buildings in many parts of Aberdeen, e.g., below part of the central buildings of Marischal College and below West North Street and John Street. It is, however, impossible to determine from the pieces of bark or other fragments to which form or forms of the aggregate included under *B. alba* these had belonged; but as both *B. verrucosa*, Ehrh. and *B. pubescens*, Ehrh. are certainly native in the vicinity of Aberdeen, it is probable that both grew in Aberdeen formerly. They both grow here still; but it is not possible to determine with certainty whether the trees now existing in the parish are descended from those native or only from those planted by man.

Adt. Ps. Both forms occur in all, probably in part as natives, and in part planted, or sprung from seeds of planted trees.

Alnus glutinosa, L. Common Alder, locally "Arn." Native by streams and in swamps.

"Den of Rubislaw" (Cow). "Rarely wild in the lower parts" (B. G.).

Though now become rare in the truly wild state around Aberdeen, this appears to be due to the drainage of the soil. Its remains are met with in the peat, e.g., below Marischal College, where a large block was dug up in making a drain in 1906. Though sometimes planted by streams and ponds, it is probable that these existing by the Don, by the Burn of Rubislaw and in a few other places in Aberdeen are of native origin.

Adt. Ps. In all; common, and in many places undoubtedly native.

CUPULIFERÆ.

Carpinus Betulus, L. Hornbeam. Alien; near Aberdeen the trees are probably not self-sown in any locality, though the fruits appear to be fully formed in some years. Native in W. Asia and Central Europe, including England.

Trees of fair size, and of considerable age, exist in various parts of Aberdeen, e.g., in Seaton.

Adt. Ps. : : M P Nh : : . Not common, and probably only where planted.

Corylus Avellana, L. Common Hazel. Native on rough banks and in thickets.

"On Donside above the Bridge" (Cow).

Possibly Cow's record applies only to the north bank; I have not seen the Hazel in Seaton. The only plant apparently wild that I have seen within the parish grows on a wooded bank by the rivulet that flows into Walker's Dam. It was, no doubt, common formerly in the small valleys near the streams, as it is still in similar places throughout much of the adjoining district.

Adt. Ps. : B M P Nh D O. Common, though restricted to suitable habitats. The nuts are often plentiful in the peat.

Quercus Robur, L. Common Oak. Alien as regards the oaks existing in and around Aberdeen; but native in Scotland, including the counties around Aberdeen, e.g., in the valley of the Dee, and on the coast at Muchalls, where it is reduced to a small shrub. Trunks of large size are sometimes found in peat-bogs. One dredged from the former estuary of the Dee, about 1832, stood for many years on the Inches, and suffered considerable damage from fire at one time, during the burning of a neighbouring woodyard.

In 1887 what remained of it was conveyed to the Duthie Park, where it still forms an interesting proof of the size to which oaks attained in the prehistoric period. Though the trees flower freely I have never seen ripe acorns in this part of Scotland, an indication that the tree must have reached its present distribution in Scotland under more favourable climatic conditions than now prevail.

Var. *pedunculata* (Ehrh.), is the more common form in and near Aberdeen, as it appears to be throughout this district of Scotland.

Var. *sessiliflora* (Salisb.). One or two trees grow by the Don in the grounds of Seaton, but it is not frequent in this district; and I have not seen it in N.E. Scotland in a certainly wild state.

Adt. Ps. In all; probably planted in most (if not in all) localities.

Fagus sylvatica, L. Common Beech. Denizen; long cultivated in Scotland, and freely self-sown. Native in S.W. Asia and in Europe, perhaps including England.

This is one of the most plentiful trees of the lower levels, so readily self-sown and so fertile that it looks native in many places.

Adt. Ps. In all; common.

Castanea sativa, L. Sweet Chestnut. Not uncommon in and around Aberdeen; but only where planted, and apparently not able to ripen fruit. Native in the warmer parts of the N. Temperate Zone, and widely dispersed by cultivation. It grew in England in prehistoric times, and was probably native there.

Adt. Ps. : : M P Nh : : . Where planted, growing to be fine trees.

SALICACEÆ.

Salix triandra, L. Almond-leaved Willow.

"In a wet meadow south from Ferryhill" (Cow). Cow's authority for a group like the Willows is very doubtful. If correctly named, this species has disappeared from Ferryhill.

Adt. Ps. : B : P : : . Rather common by the Burn of Culter, near Culter; but probably not native. Its claim to be native in Scotland is doubtful.

S. pentandra, L. Bay-leaved Willow. Apparently native a few miles from Aberdeen; but probably a denizen only within the parish.

"Near Angusfield" (Fl. Ab.). "Gordon's Mills, 1845" (Polson hb.). "Seldom wild in the lower, generally so in some of the inland parts of the district" (B. G.).

This willow still grows by the burn at Angusfield, and by the Don between Gordon's Mills and Tillydrone, probably as a denizen only.

Adt. Ps. : B M P Nh D O. Local, not very common anywhere.

S. fragilis, L. Crack Willow. Alien near Aberdeen. Native in Asia and Europe, including parts of Britain.

"Inter Salices viminales ad fossam prope the Links" (Skene). "In Angusburn" (Cow).

Rather frequent along streams, where it sometimes becomes a large tree, e.g., along Powis Burn, east of Old Aberdeen; but it does not seem even to be self-sown from the planted trees.

Adt. Ps. In all; frequently planted by streams and in wet soil.

S. alba, L. White Willow. Alien. The same remarks apply to this as to *S. fragilis*.

"Donside above the Printfield; Den of Rubislaw" (Cow). "Canalside at Printfield, 1845" (Polson hb.).

Often planted beside streams and on damp soil, e.g., at Lady-mill, by the Don, about Rubislaw, etc.

Adt. Ps. : B M P Nh D O. Frequent.

S. cinerea, L. Grey Sallow. Native; by streams and in damp soils.

"Donside and Den of Rubislaw" (Cow and B. G.).

Not uncommon by the Don, near Hilton, in Rubislaw, Ruthrieston, and Ferryhill.

Adt. Ps. In all; moderately common.

S. aurita, L. Eared Sallow. Native in similar places to *S. cinerea*.

"Donside at the Printfield, 1845" (Polson hb.).

Rather frequent in suitable habitats, such as by the Don, about old quarries, and by roadside ditches near Hilton, in Rubislaw, etc.

Adt. Ps. In all; common, more frequent than in Aberdeen.

S. caprea, L. Goat Willow, or Great Round-leaved Sallow. Native, by streams and pools, less common than the other sallows.

"Den of Rubislaw" (Cow). "Rubislaw Quarry; Ferryhill" (Fl. Ab.).

I have seen this in the old quarries at Rubislaw and in Ferryhill, in habitats from which it has been uprooted or destroyed. It may still be met with near the Don; but is rare within Aberdeen.

Adt. Ps. : B M P Nh D O. Local, but fairly common in a few places.

S. repens, L. Dwarf Silky Willow. Native; now rare in Aberdeen, though probably as common here formerly as it is, locally, in the neighbouring counties.

I have seen this growing within the parish only by the side of a road west from Hilton, in small quantity. There is no mention of its occurrence within Aberdeen in any published or other record.

Adt. Ps. In all; very common in some habitats, e.g., on Balgownie Links, and on the coast of Nigg.

[**S. ambigua, Ehrh.**] a hybrid between *S. aurita* and *S. repens*, has been found in Peterculter and in Maryculter, growing near the parent species.

S. nigricans, Sm. Dark-leaved Willow. Native in Scotland.

“In Pitmuxton Marsh” (Cow).

Possibly the species found by Cow was *S. phylicifolia*; but I have no other record of either for Aberdeen. *S. nigricans* is much the less likely to have occurred in the marsh as it does not, so far as known, grow in even the adjacent parishes.

[**S. phylicifolia, L.**] Tea-leaved Willow. Native.

Plentiful up the valley of the Dee, and extending along the river, through B M and P, to below Cults. *S. nigricans* and *S. phylicifolia*, approach very closely in some of their forms.

S. viminalis, L. Common Osier. Alien; often planted to obtain twigs for plaiting into baskets; and almost become a denizen in places. Native in a great part of Europe and in Asia.

“Near Angusfield” (Fl. Ab.).

Frequent by streams.

Adt. Ps. In all; planted by streams, or in wet soils, often in beds. It is peculiarly frequent near fishing villages, the twigs being used to make fish-creels.

Hybrids between *S. viminalis* and the Sallows (*S. caprea*, *S. cinerea*, and *S. aurita*) are almost as frequently planted as *S. viminalis*, and may often be seen by streams within Aberdeen and in its neighbourhood. One of these is recorded by Cow, under the

name *stipularis*, from Angusburn and Rubislaw. *S. Smithiana*, another of the hybrids, grows in College Bounds, in Old Aberdeen.

S. purpurea, L. Purple Osier. Alien; almost become a denizen locally. Native in Europe, including great part of Britain.

"At Pitmuxton Marsh; in the Den of Rubislaw; and on the banks of Angusburn" (Cow).

I have found this occasionally near the Don, in the Woodside district, and about Rubislaw and Ruthrieston; but it is not frequent near Aberdeen. The twigs are often swollen by the galls of a midge, *Rabdophaga Salicis*.

Adt. Ps. Ng B M P Nh D : .

Populus tremula, L. Aspen. Native in the near neighbourhood of Aberdeen, though rare within the parish, and only where planted. It may have been native here also in the natural condition of the surface.

Adt. Ps. : B M P Nh D O. Not frequent; but native in several localities, e.g., Den of Maidencraig, near Grandholm, etc. Small examples grow in Hazlehead woods, very close to the boundary of Aberdeen; they may not be native.

Several species of *Populus* are often planted in and near Aberdeen; and occasionally they may appear to be wild; or, rarely, self-sown examples may be met with. The most commonly planted species are the White Poplar (*P. alba*, L.), the Grey Poplar (*P. canescens*, Sm.), the Black Poplar (*P. nigra*, L.), and some of the American species.

EMPETRACEÆ.

Empetrum nigrum, L. Crowberry. Native; widespread, and often abundant on moors and similar waste ground from the sea-level to tops of the higher mountains. Almost extinct within Aberdeen.

"Passim in ericetis" (Skene).

I have seen this on Stocket Moor; but since the cultivation of the moor about 1880 it appears to have become extinct, or almost so, in Aberdeen north of the Dee. It still grows, in small quantity, on the rough south bank of the Dee east of Torry. It must have been plentiful on the moors that formerly covered so much of what is now within Aberdeen.

Adt. Ps. In all; very common on moors, both inland and on the cliffs along the coast in Nigg and Banchory.

CERATOPHYLLACEÆ.

Ceratophyllum demersum, L. ? Common Hornwort.

"In a small pond on Deeside, above the Braes of Pitfodels; in streams about the Printfield; in ponds and ditches on the Links of Belhelvie, etc." (Cow).

As this species has not been observed by anyone else in this district, I can only conjecture that Cow mistook for it some other water plant, possibly some form of *Ranunculus aquatilis*.

MONOCOTYLEDONES.

HYDROCHARITACEÆ.

Elodea canadensis, Michx. (*Anacharis Alsinastrum*, Bab.). Water Thyme. Native in N. America; but become a denizen in ponds and streams in many localities in Scotland, including the N.E. district.

"Introduced into pools by the roadside west from Summerhill, near Aberdeen, and into the small lake on the Old Town Links" (B. G.).

It appeared to have died out of the pool on the Links (now filled up) before 1869; but in that year it grew in plenty in a pool in the old quarries of Rubislaw and in the burn near Angusfield. In 1907 it was abundant in the ponds at the Bleaching Works of Rubislaw. The pool in the quarries has been filled with refuse, and the water has been entirely run off from most of the ponds at the Works, so that these habitats of the Water Thyme no longer exist; but it still grows in shallow water in two or three of the ponds, and also in the Burn. It grows in backwaters and quiet pools of the Dee above Cults; but I have never seen it below the Old Bridge of Dee; nor is there any record of its having been observed in the Don.

Adt. Ps. Ng B M P : : O. Only by the Dee and (observed for the first time in October, 1912) in the mill dam near the New Bridge of Don. It is abundant in suitable localities in a good many places in Buchan and elsewhere in the adjoining counties.

ORCHIDACEÆ.

The preference of Orchids for marshes, heaths, woods, and natural pastures, and their intolerance of the effects of man's interference with their natural habitats, due apparently to association

with certain types of fungi as a condition of their healthy development, have led to the extirpation within our limits of certain species and to the almost certain disappearance of others in the near future, as they are already restricted to the remnants of moor and wood still left on the extreme western limit near Queen's Road West. In a few years the streets will probably have covered this ground, and the Orchids will have perished. Of six species that are native in adjacent parishes there is no record as having been observed in Aberdeen, although it is almost certain that they did so in the natural condition of the surface.

[*Corallorhiza trifida*, *Chat.* (*C. innata*, *R. Br.*). Coral-root.] Native in swampy thickets, where it lives, with the aid of a fungus on decaying remains of plants.

Adt. Ps. : : : P : : : . Extremely local; in one part of the Den of Murtle. The only other habitat known to me in this district is a swampy place in a wood a little distance west of Kintore, where it was found some years ago by the late Dr. William Tait.

Listera cordata, *R. Br.* Least Tway-blade. Native on heaths and in heathy woods, apt to be overlooked among the heather.

"Above Den of Rubislaw" (Beattie). "Stocket Moor, 1835" (Dickie hb.). "Woods by the Skene Road west from Robslaw Quarry" (B. G.).

Only a few plants still survive in the woods beside Queen's Road West. This Tway-blade must have been rather frequent in Aberdeen formerly.

Adt. Ps. In all; requiring to be sought for; but not rare.

[*L. ovata*, *R. Br.* Common Tway-blade.] Native.

In damp pastures, extremely local in this district. There is no record of its occurrence in Aberdeen.

Adt. Ps. : (B) (M) : (Nh) : O. I have seen it near Aberdeen only on a small patch of the N.W. corner of Scotston Moor, where it was discovered in 1906 by Mr. William Thomson. It grows in several places in the counties near Aberdeen. In a marsh west of Huntly I found it of large size and in the utmost plenty in August, 1905.

Goodyera repens, *R. Br.* Creeping Goodyera. Native in fir woods, rarely extending its range to open moors.

"A solitary specimen in Ewing's Hermitage" Berryden

(Beattie). "Hilton" (Knight). "By the Skene Road west from Robslaw Quarry" (B. G.).

Now restricted in Aberdeen to the planted woods near Queen's Road West; but probably not uncommon formerly in the natural woods.

Adt. Ps. In all; very common in many fir woods. When new plantations of firs are made the *Goodyera* appears after a good many years, probably from seeds carried by the wind, the young plants of orchids requiring a considerable time to reach the mature state.

[*Orchis mascula*, *L.* Early Purple Orchis.] Native; in woods, and on coast very local.

There is no record of the species for Aberdeen; but in view of its occurrence by the Don it is probable that it grew within the parish formerly.

Adt. Ps. : B (M) (P) : : O. Locally common on coast, on moist braes, from Portlethen southwards. A few grow on the wooded north bank of the Don above the Old Bridge; but it has become very scarce there.

O. latifolia, *L.* Marsh Orchis. Under this name in the older records, including all that relate to the local lists of Aberdeen, two are included, now generally treated as distinct species. These will be referred to separately below, after quotation of the records. Both are native in Scotland, though one is the more general and common. "Vulgatissima in pratis et pascuis" (Skene). "At Pitmuxton Marsh" (Cow).

O. latifolia, *L.*, vera (*O. maialis*, Reich.). This is the only form that I have seen within Aberdeen, and of which there is positive record. It was common on Stocket Moor; but since the cultivation of the moor the Orchis seems to have disappeared from the parish north of the Dee. A few still linger on wet spots of the rough south bank of the river east of Torry. It must have been plentiful in marshy ground within Aberdeen formerly.

Adt. Ps. In all; plentiful in many marshes.

[*O. incarnata*, *L.*] Possibly the older records of *O. latifolia* cover this also; but it appears to be very scarce in the district around Aberdeen; and there is no record of its having been observed

within the parish. It is often not easy to distinguish from *O. latifolia*.

Adt. Ps. : : : : : (O). Rare. Though local, it is not uncommon in a few localities in the adjoining counties, in marshy ground.

O. maculata, L. Spotted Orchis. Native; usually on drier heaths and pastures, though sometimes in wetter places, where it may grow intermixed with *O. latifolia*, with which it occasionally hybridises.

"Passim in pratis, etiam humidioribus" (Skene). "Natural pastures and heaths, very frequent in all parts of the district" (B. G.).

This must formerly have been very common in Aberdeen; but it is now almost restricted to the remains of woods west of Rubislaw and to the braes on the south bank of the Dee east of Torry. Its flowers show great diversity in colour and markings of the lower lip. Of these forms one meets with var. *ericetorum*, Linton, though not so commonly as with the type.

Adt. Ps. Ng B M P Nh : O. Plentiful in suitable localities, var. *ericetorum* occurring with the type, though less frequently.

O. morio, Cow, non L. "Wood at Culter; on Donside above the bridge, abundant" (Cow).

This record is certainly erroneous, as the species does not grow near Aberdeen; it may be due to a mistaken identification of *O. mascula*.

Habenaria Conopsea, Benth. Fragrant Orchis. Native on drier moors and in natural pastures; common locally.

"In pratis et pascuis" (Skene). "Boggy ground above Rubislaw" (Beattie). "Stocket Moor, 1833" (Dickie hb.).

I have gathered it, between 1870 and 1879, on Stocket Moor; but with the cultivation of the moor it seems to have become extinct in Aberdeen, where it must have formerly been as common as it still is on moors not far distant.

Adt. Ps. In all local, but common in suitable habitats.

[**H. albida, R. Br.** Small White Orchis.] Very local; but common in short dry pastures and on grassy heaths in a few places. There is no record of it in Aberdeen, though it may well have occurred.

Adt. Ps. (Ng) : M P (Nh) : : . "Corbie Den" (Beattie). It still grows there.

H. viridis, *R. Br.* Frog Orchis. Native; in short dry pastures.

I have found a very few examples, the last in 1902, on short turf on the inner sand-dunes of the Links, near the mouth of the Don.

Adt. Ps. : (B) M : : O. Balgownie Links, very plentiful on short turf of the dunes and of the golf-course.

[*H. bifolia*, *R. Br.* Lesser Butterfly Orchis.] Native; on damp moors and pastures.

Though no record of this Orchis exists for Aberdeen, it probably was native here, as on various moors in the vicinity.

Adt. Ps. : B : : Nh D O. Not uncommon in a few places.

IRIDACEÆ.

Iris Pseudacorus, *L.* Yellow Flag, or Yellow Water Iris. Native, by streams and in pools.

"In udis, ad fluv. ripas" (Skene). "Canal, King's Links, etc., frequent" (Knight). "On the West side of the Old Town Links" (N. Fl.). "Canal above Mount Hooly" (Dickie hb.).

The Canal was dried, and became the track of the G.N.S. Railway about half a century ago; and changes in the Links, and in the burns flowing to the Don, led to the disappearance of the Iris from that quarter, many years since. Possibly extinct as a native in Aberdeen.

Adt. Ps. : B M P Nh D : . Local; scarcely common in the district.

Tritonia Pottsii, Benth. et Hook. f.

Adt. Ps. : : : : Nh : : . Established on rough bank of Don below Stoneywood.

Crocus vernus, Ait. Common Spring Crocus. Casual, as out-cast or escape from cultivation. Native in Central and S. Europe.

In 1906 in a sandpit near Tillydrone. Not unfrequent in lawns or shrubberies, but nowhere as a denizen.

AMARYLLIDACEÆ.

Narcissus Pseudonarcissus, *L.* Common Daffodil. Alien; scarcely a denizen anywhere near Aberdeen. Native in great part of Europe, including England; widely dispersed by cultivation.

"In the Den of Rubislaw" (Cow).

It still grows in the Den, where it had probably been planted originally; and it is abundant on a wooded bank by the north avenue to Seaton House. Occasionally it springs up as a casual on rubbish heaps on waste ground; but it is rarely allowed to remain there for more than a season. The flower is usually double, thus showing the cultivated origin of these casuals.

Adt. Ps. Occasionally, under similar conditions as to having been planted, or outcasts from some garden.

Galanthus nivalis, L. Common Snowdrop. Alien in Scotland. Native in N. and Central Europe, including England.

"In the Den of Rubislaw, plentiful" (Cow and Fl. Ab.).

A few may be seen in old pasture in the grounds of Seaton; and occasionally it may be found in unexpected places; but in all cases either as intentionally introduced, or from bulbs thrown out from some garden originally. It can scarcely be regarded as a denizen anywhere in the vicinity of Aberdeen. I have found it in a field near Linksfield, in rubbish on waste ground near King Street, etc.

LILIACEÆ.

Polygonatum multiflorum, All. Solomon's Seal. Alien in Scotland; but naturalised here and there. Native in Europe, including England.

"Not common in the Den of Rubislaw" (Cow). "In a field west of Chanonry House, Old Aberdeen, 1845" (Polson hb.).

I have never seen this in Aberdeen except as an evident outcast, or in cultivation.

Adt. Ps. : : (M) (P) : : : . "Corbie Pot" (Beattie). "King-causie" (Fl. Ab.). "Culter, 1842" (Beveridge hb.).

Convallaria majalis, L. Lily-of-the-valley. Doubtfully native anywhere in Scotland, and certainly not so in Aberdeen; dispersed by cultivation or planting.

"Not common in the Den of Rubislaw" (Cow).

It can hold its place in suitable habitats in N.E. Scotland.

Allium vineale, L. Crow Garlic. Native; on rough banks; rare.

"Rubislaw" (Knight).

This species is plentiful on a part of the rough wooded bank of the Don above the Old Bridge, on the north side, and has been so for many years. In this shady situation it rarely flowers. On the

south bank, in Seaton, within Aberdeen I have been able, even by close searching, to find only two or three plants. About twenty years ago a few appeared close to the Don a little above the Coast-guard Station; and in this more open place they grew vigorously, and produced abundance of bulbils, along with a few flowers. They multiplied rapidly; and now form the greater part of the vegetation over many square yards of the bank along the river. It has in recent years become rather common on the north bank between the bridges, and along the south side of the island in the Don; early in June, 1912, I found it in some plenty, among the herbage liable to be flooded at high tides, on the south bank a little west of the mouth of the Tile Burn. I have never seen it in Rubislaw.

Adt. Ps. : : : : O. Along the Don, as described above. It is plentiful on dry banks in S. Kincardineshire.

A. Schoenoprasum, L. Chives. Alien in Scotland. Native in Temperate Zone, including England.

"In the Den of Rubislaw" (Cow). No doubt a relict of some garden or outcast.

A. ursinum, L. Bear garlic or Ramsons. Native; in shaded dens usually; plentiful in a few localities.

"Den of Rubislaw, 1833" (Dickie hb.).

Still common there, and by the Don in Seaton, not far above the Old Bridge.

Adt. Ps. : : M : : : O. Plentiful on the north bank of the Don above the Old Bridge, where shaded by trees.

Endymion non-scriptum, *Garcke*. Wild Hyacinth; the "Blue-bell" in England. Native on rough wooded banks; but local; and sometimes planted, e.g., on a bank beside the north avenue to Seaton.

"Side of a small stream at Foresterhill" (Cow). "Den of Rubislaw" (Fl. Ab.). "Rubislaw and bank of Don" (Knight).

It still grows in the Den and on the rough bank of the Don in Seaton, above the Old Bridge; but it is not common in Aberdeen.

Adt. Ps. : : : (P) Nh : O. On the wooded N. bank of the Don.

Ornithogalum umbellatum, L. Common Star-of-Bethlehem. Alien; planted, outcast, or relict of cultivation. Native in S. Europe; widely dispersed by cultivation.

"Wood east of Seaton House, 1845" (Polson hb.).

Adt. Ps. : : P : : O. "Above Old Bridge of Don, 1842" (Beveridge hb.).

In the wood on the steep bank of the Don near the gate of Balgownie Lodge this plant seems to be naturalised. I have also seen it apparently wild near Cults, originally from some garden.

Narthecium ossifragum, *Huds.* Bog Asphodel. Native; in swampy places.

"Passim in humidis et uliginosis" (Skene). "Rubislaw, Ferryhill" (Beattie). "Ferryhill Moss, etc., common" (Knight).

I have seen this on Stocket Moor, before 1880; but it appears to be extinct in Aberdeen since the cultivation of that moor. It must have been plentiful on the swampy moors so widespread in Aberdeen formerly.

Adt. Ps. In all; plentiful in suitable habitats.

[**Paris quadrifolia**, *L.* Herb Paris.] Native in Scotland, in woods; but very local, though plentiful where it grows.

Adt. Ps. : : M : (Nh) : : . Corbie Den, Kingcausie; recorded by Beattie, and still abundant in one part of the Den. "Woods of Craibstone" (B. G.).

JUNCACEÆ.

Juncus bufonius, *L.* Toad Rush. Native; in wet soils.

"Passim in aquosis et humidis" (Skene). "Rubislaw, Inches, and Old Town Links, 1835" (Dickie hb.).

Still common in ditches and by pools, less often in damp fields and gardens, in the north and west parts of the parish; not common on the Links. It had been much more common before drainage of the surface.

Adt. Ps. In all; abundant in suitable habitats.

J. squarrosus, *L.* Heath Rush. Native; on heaths and in natural pastures.

^a "Vulgatissima in ericetis et humidioribus" (Skene). "Stocket Moor, 1834" (Dickie hb.). "On the Links, north of Broadhill; head of Rubislaw Den" (Cow).

This rush still grows on the lower parts of the Links between the Broadhill and the football ground near East Seaton, and also in the remains of woodland near Queen's Road West; and an occasional plant may be found on waste ground about the old quarries

near Rosehill, etc.; but it has become a scarce plant within Aberdeen, though formerly it must have been plentiful.

Adt. Ps. In all; common and general.

J. Gerardii, Loisel. Gerard's Rush. Native in salt-marshes, near the sea, usually where liable to be flooded at high tides.

"Old Town Links" (Knight, and Dickie hb., as *J. compressus*). "Salt-marshes; on the banks of the Don near its mouth; on the Inches and Deeside" (Cow, as *J. bulbosus*).

Though still frequent by the estuary of the Don and on the part of the Links liable to be flooded at high tides, its continuance is threatened by the changes that are likely to be carried out there in the not distant future. It is now rare by the Dee, owing to the alterations that have been made in the estuary of that river.

Adt. Ps. Ng B : : : : O. Local; but plentiful in a few localities.

J. tenuis, Willd. Slender Rush. Only a casual on rubbish in Aberdeen. Native in N. America, and probably so in W. Europe.

Once found by me, in 1894, on the old bed of the Dee, near the Railway Station, and again, in October, 1909, on waste ground at Berryden. The only other occasions on which I have seen it, or know of its occurrence in this part of Scotland, were in 1902, when I found a few plants on a road over a small moor near Beltcraigs, in Banchory Ternan, about seventeen miles west of Aberdeen, and on 18 September, 1914, when I found several plants in a space of a few feet on the grassy border by the road from Persley Bridge to Grandholm House, a little beyond where the road bends north from the river near Mugiemoos.

[**J. balticus, Willd.** Northern Rush.] Native in Scotland in damp soils, almost always near the coast; not known from Aberdeen.

Adt. Ps. : : : : : (O). Formerly in a small marsh near the sea on the Links north of the Don, about a mile from Donmouth. The rush had disappeared before 1870, when I first looked for it there; and the marsh has been drained since the Balgownie golf-course was formed. *J. balticus* is extremely rare in this district.

[**J. filiformis, L.** Thread Rush.] Native; but confined to the shores of the Loch of Loirston, where it is rather common. It is very frequent in suitable habitats in N.W. Europe, from which

the seeds may have been brought to the Loch of Loirston by some water bird.

J. effusus, L. Soft Rush. Native in moist pastures, and by streams and pools; general and common in undrained soils.

"Side of a small pond at Powis Hermitage" (Cow).

Though much diminished in frequency by drainage of the soil in Aberdeen, it still grows in several parts of the parish. I have found here the forms *elatus* (in woods usually, where drawn up and weak) and *compactus*, resembling *J. conglomeratus* in the closeness of the panicle.

Adt. Ps. In all; general, and in many places, abundant.

J. conglomeratus, L. Common Rush. Native; in similar habitats with *J. effusus*, but usually less abundant in this district.

"Stocket Moor, 1835" (Dickie hb.). "On the Links north of Broadhill; in the Den of Rubislaw; side of the quarries at Hilton, etc." (Cow).

Still grows in the few habitats left to it in Aberdeen, though not frequent. It had certainly been common here formerly.

Adt. Ps. In all; general, and occasionally plentiful.

J. bulbosus, L. (*J. supinus*, Mœnch). Lesser Bog Rush. Native in pools and on wet mud by streams and in ditches.

"Ubique in paludosis" (Skene). "Stocket Moor, 1835" (Dickie hb.). "Pitmuxton Marsh" (Cow).

This must formerly have been plentiful in Aberdeen; but it has become very scarce, owing to drainage of the surface.

Adt. Ps. In all; abundant in suitable habitats; and varying greatly, the forms being often in relation to the depth of water in which it grows. The following have been observed by me in this district:—

nodosus, Lange, common on wet mud, often with viviparous buds replacing the flowers.

geniculatus, Asch. et Græb., differing from *nodosus* in the knee-like angles at nodes in the inflorescences.

uliginosus, Fr., creeping on wet mud, rooting at the nodes, and flowering freely.

fluitans, Fr., in water not too deep to allow the slender leaves and few-flowered inflorescences to rise from the stem into the air.

Kochii, *Syme*, characterised by six stamens in the flower ; in pastures.

J. articulatus, *L.* (*J. lampocarpus*, Ehrh.). Shining-fruited Rush. Native in wet soils, often where the vegetation is rather poor and scanty.

"Old Aberdeen Links, 1877" (Harvey hb.). "Bank of Dee, 1835" (Dickie hb.).

It still grows in both localities, as well as on waste marshy ground in a good many places in the inland parts of Aberdeen ; but its distribution here has been much limited by drainage.

J. acutiflorus, *Ehrh.* Sharp-flowered Rush, locally called "sprots." Native in swamps.

"Vulgatissimus in pratis humidis" (Skene, as *J. articulatus*, probably covering *J. bulbosus*, *L.* and *J. lampocarpus*, Ehrh.). "Den of Rubislaw" (Cow).

It is still not uncommon in damp soils in a few localities in Aberdeen, e.g., on fields near East Seaton ; but drainage has very greatly reduced its frequency here. It shows great variability in the inflorescences.

Adt. Ps. In all ; general, and in many places abundant, almost to exclusion of other plants.

Luzula pilosa, *Wild.* (*L. vernalis*, DC.). Broad-leaved Hairy Wood Rush. Native, in grassy woodlands.

"Rubislaw Den, 1835" (Dickie hb.).

It still grows there, and on wooded banks of the Don ; but it has become scarce in Aberdeen.

Adt. Ps. In all ; common in grassy woods.

L. sylvatica, *Gaud.* (*L. maxima*, DC.). Great Hairy Wood Rush. Native ; on rough banks, in woods, and on moors.

"Den of Rubislaw ; Donside, above and below the bridge" (Cow).

Still frequent in these localities.

Adt. Ps. In all ; abundant in various localities.

L. campestris, *DC.* Field Wood Rush. Native ; in short natural pasture.

"In pratis et humidis. In the Links among the sandhills, 'fl.' 29 April, 1765" (Skene). "Rubislaw Quarries" (Harvey). "Stocket Moor, 1835" (Dickie hb.). "On the Links and the Broadhill" (Cow).

This wood rush is still common on the Links, in a meadow by the Don near Seaton House, by roads and on quarry-refuse near Hilton, in Rubislaw, etc., and by the Dee.

Adt. Ps. In all; locally common.

L. multiflora, *Lej.* (*L. erecta*, Desv.). Erect Field Wood Rush. Native; in habitats similar to those of *L. campestris*, but preferring less dry soils, and also more apt to grow in woods. It flowers later.

This was not distinguished from *L. campestris* in any published flora of Aberdeen. Its larger size and later period of flowering make it perhaps the more conspicuous form, though not quite so plentiful as *campestris*. Var. *congesta*, Koch, with crowded flowers, is more frequent here than *typica*, Beck, with stalked branches in the inflorescence, the latter being rather local.

Adt. Ps. In all; general and common, *congesta* being the more common variety.

PALMÆ.

Phoenix dactylifera, L. Date Palm. Native in N. Africa and Arabia.

On town-refuse seedlings have been observed by me on the old bed of the Dee, on Old Aberdeen Links, and in other places, sprung from seeds thrown out, or from decayed fruits. It is almost needless to say that the following winter proved fatal to all such casuals.

TYPHACEÆ.

Typha latifolia, L. Great Cat's-tail or Reed-mace. Alien. Native in N. Temperate zones, including part of Britain.

"Don below Tillydrone" (Knight). There is no other record for it in Aberdeen.

It had certainly been planted where Professor Knight saw it, and it does not seem to have survived long. It was introduced about 1880 into an old quarry near Hilton, and still grows there; and in September, 1909, two plants grew in shallow water in the bottom of one of the ponds of Rubislaw Bleaching Works.

Sparganium erectum, L. (*S. ramosum*, Huds.) Branched Bur-reed. Native; in pools and streams; locally common.

"Old Town Links" (Beattie). "Tillydrone" (Knight). "Near the Brickwork, in Old Town Links, 1835" (Dickie hb.). "In the Den of Rubislaw; in Powis Burn, near the Links; in a pond south of Donmouth; in a small pond by the Hermitage" (Cow).

It does not now grow in most of these localities; but it is rather common by the Don from Seaton upwards. It grows in an old quarry near Hilton, no doubt as an introduction.

Adt. Ps. In all; general, and plentiful in several habitats.

[*S. simplex*, *Huds.* Unbranched Bur-reed.] Native in pools and swamps; not on records from within Aberdeen.

Adt. Ps. : B : (P) : : O. Very local, and not common, except in shallow pools in a moist hollow east of Findon in B.

S. natans, *L.* (*S. affine*, Schnizl). Floating Bur-reed. Native; in pools and streams.

“In Pitmuxton Marsh” (Cow; this may refer to *S. minimum*, which is more frequent than *S. natans* in marshes).

S. natans grows in the Don in fair quantity; but not flowering or rarely so.

Adt. Ps. Ng : (M) P : D O. In the Dee and the Don.

S. minimum, *Fr.* Small Bur-reed. Native; usually in shallow pools in swamps and peat-mosses.

I have not seen this within the parish; nor is there any certain record of its occurrence here; but it is not distinguished from *S. natans* in any record but the Botanist's Guide although more common than *S. natans* in swampy pools, such as were to be found on the moors in Aberdeen. Possibly Cow's plant from Pitmuxton Marsh was *S. minimum*.

Adt. Ps. : : : (Nh) : O. On Scotston Moor, rare; in White-stripes Moss, in pools liable to have the water almost dried in summer, local. It is not uncommon in a good many localities in the counties near Aberdeen.

ARACEÆ.

Arum maculatum, *L.* Cuckoo-pint, or Lords and Ladies. Probably this is only a denizen in at least the north of Scotland; almost always under shade of trees, in private grounds. I have no record of its growing at the foot of a hedge, as it does often in England.

“Gordon's Hospital Garden” (Beattie). “Den of Rubislaw, 1835” (Dickie hb.). “Wood east of Seaton House, 1845” (Polson hb.).

Still common in both localities, on slopes shaded by trees.

Adt. Ps. : B M (P) : : : . Only where there is reason to believe it had been originally planted.

LEMNACEÆ.

Lemna minor, *L.* Small Duck weed. Native in pools, ditches, and slow streams.

"General in stagnant water" (Knight). "In flower in Moss of Ferryhill, 1826" (Harvey hb.). "Ditch near Links by Constitution Street, in a pond south of Donmouth, by the Links; in a small pond at Powis Hermitage" (Cow).

I have seen it in abundance in pools, now filled with debris, in the old quarries at Rubislaw; but it has disappeared from almost all its former habitats in Aberdeen, and is now rare within the parish.

Adt. Ps. (Ng) : (M) P Nh D O. Local, but abundant in some places.

ALISMACEÆ.

Alisma Plantago-aquatica, *L.* Greater Water-plantain. Native in ponds.

"Ferryhill" (Beattie). "Dam of Gilcomston, in great abundance" (Knight, Harvey and Dickie hb.).

The *Alisma* had disappeared some time before 1900, when the dam was filled up. It does not appear to survive in Aberdeen anywhere.

Adt. Ps. (Ng) B M P : : O. Local and rarely common.

NAIADACEÆ.

Triglochin palustre, *L.* Marsh Arrow-grass. Native; in marshes.

"Deeside, Links, etc." (Beattie and Harvey). "Stocket Moor, 1835" (Dickie hb.). "Wet pastures by the Links" (Cow).

This may still be found on the low swampy part of the Links, near the Don, in small quantity; but it appears to have become extinct elsewhere in Aberdeen, though it must have been common and widespread on the wet moors formerly.

Adt. Ps. In all, rather local, sometimes plentiful.

T. maritimum, *L.* Sea Arrow-grass. Native; in salt-marshes on coast.

"Passim in paludosis" (Skene). "Old Town Links" (Beattie and Dickie hb. 1835). "On the Inches; on Dee-side, in many places" (Cow).

It is now almost extinct by the Dee, in consequence of alterations made on the estuary; but it is still plentiful on the low ground near the mouth of the Don, where liable to be flooded with brackish water in very high tides.

Adt. Ps. Ng B : : : O. Common in wet places on the rocky shores, and by the estuary of the Don.

Potamogeton natans, *L.* Broad-leaved Pondweed. Native; in streams and deeper pools.

“Canal near Kittybrewster; Donside” (N. Fl.).

It still grows in the Don, and in old quarries near Hilton and Rosehill; but it is less common about Aberdeen than it was. It used to be plentiful in a pool in the old quarries of Rubislaw, now filled with refuse.

Adt. Ps. In all; in the Dee and Don, and in pools here and there.

P. polygonifolius, *Pourr.* Oblong-leaved Pondweed. Native; in marshes and in shallow pools on wet moors.

This is not distinguished from *P. natans* in the local floras of Aberdeen and its vicinity, though commoner than that species. “Ferryhill Moss, 1837” (Laing hb.). “Pitmuxton Marsh” (Cow, as *P. natans*).

It must have been as common formerly on the wet moors of Aberdeen as it still is in similar habitats in the country around.

Adt. Ps. In all; plentiful in suitable localities.

P. alpinus, *Balbis* (*P. rufescens*, Schrad.). Reddish Pondweed. Native.

“Canal near Cotton” (Knight). “Abundant in the Canal, at Aberdeen; and occasionally in the Don” (N. Fl. and Fl. Ab., as *P. rufescens*, and Cow as *P. fluitans*).

It still grows in the Don.

Adt. Ps. : : : P Nh D O.

P. heterophyllus, *Schreb.* Various-leaved Pondweed.

This species, and the variety of it, under the name *P. lanceolatus*, are recorded from the Canal between King Street and Kittybrewster by Murray (N. Fl.), Cow, and Dickie. I have not seen *P. heterophyllus* growing within Aberdeen; but it is locally plentiful in lochs and streams in various parts of the neighbouring counties.

P. perfoliatus, *L.* Perfoliate Pondweed. Native; in streams and pools.

"Abundant in the Canal near Aberdeen" (N. Fl.). "In the Don at Woodside" (Cow).

Still common in the Don.

Adt. Ps. : : : : Nh D O. In the Don.

P. crispus, L. Curled Pondweed. Native; in pools and streams, very local.

"In the neighbourhood of Aberdeen" (N. Fl.). "The Canal from the lime basin to Grandholm" (Cow). "Dam of Gilcomston, 1836" (Dickie hb.).

The Canal ceased to exist in the middle of last century; and Gilcomston Dam was filled up a few years ago. In 1907 *P. crispus* was very abundant in the ponds at the then-abandoned Rubislaw Bleachworks; but in 1908 these ponds were emptied of water, and the pondweed disappeared. I do not know of any place in which it may now be found in Aberdeen.

Adt. Ps. : : : : : (O).

P. densus, L.? Close-leaved Pondweed.

"In the Canal above the lime-basin, very abundant, and at Grandholm; in streams about the Printfield, etc." (Cow).

This species has not been observed by anyone else near Aberdeen; and Cow was evidently mistaken as to the species.

P. obtusifolius, Mert. et Koch? Grassy pondweed.

"In the Don at Grandholm Mills; in the Canal lime-basin; in a pond south from Donmouth, etc." (Cow, as *P. gramineum*).

As this also remains unconfirmed there can be no doubt that Cow was in error.

P. pusillus, L. Small Pondweed. Native; in pools, very local.

"Near Aberdeen in the Canal" (Beattie, Knight, and N. Fl.). "Ditches at Stocket" (B. G.).

In 1902 I found this species in an old quarry near Rosehill, the only locality, so far as I know, in which it still grows in Aberdeen.

Adt. Ps. : : (M) : : : O. Not common.

P. pectinatus, L. Fennel-leaved Pondweed. Native; very rare in Aberdeen.

"Marsh on the Old Aberdeen Links" (Beattie, Knight, and N. Fl.). "In the Den of Rubislaw, near the head; in the Canal, etc." (Cow, almost certainly in error, possibly for *P. pusillus*).

It still grows in one or two shallow pools on the low part of the Links near the Don, where liable to be submerged by high tides; but in a few years these pools will probably have been filled up in the changes likely to be effected on the Links.

***Ruppia rostellata*, Koch.** Lesser *Ruppia*. Native; in salt marshes.

"Salt marshes at Torry farm, south side of Aberdeen Harbour; this species was discovered here by Rev. J. Minto in 1849" (B. G.).

The alterations made on the estuary of the Dee have extirpated this plant locally.

***Zostera marina*, L.** Common Grass-wrack. Not native near Aberdeen.

"Near Donmouth, G. Baxter, 1813" (Knight). "Occasionally found up on the seacoast after storms" (Cow). "I have seen it cast up on the beach at Aberdeen, but have no record of it in situ" (B. G.).

Abundant in the estuary of the South Esk, near Montrose, and in small quantity in the mouth of the North Esk, the pieces picked up on the beach near Aberdeen were probably brought from these sources.

***Zannichellia palustris*, L.?** Horned Pondweed.

"In a ditch near Deeside, above the Braes of Pitfodels" (Cow).

Another very doubtful record, resting on Cow's unsupported statement; probably due to a mistake.

CYPERACEÆ.

***Eleocharis acicularis*, R. Br.?** Least Club-rush.

"On wet banks south side of Don; on wet places on the seacoast at the Girdleness" (Cow, as *Scirpus*).

Almost certainly an error in identification; unconfirmed by any testimony.

***E. palustris*, Roem. et Sch.** Marsh Club-rush. Native; on wet soil, by pools and streams.

"Passim in fossis, paludibus, rivulis" (Skene). "Deeside, abundantly" (Beattie). "Very common" (Knight). "Banks of Don, below the bridge; Dam of Gilcomston; on Deeside, etc." (Cow, and Fl. Ab.).

Still grows by the Dee, and common by the Don, also in pools in the old quarries near Hilton, Rubislaw, etc.

Adt. Ps. In all; locally plentiful.

E. uniglumis, *Schultes*. Link's Club-rush. Native; in damp soil near sea.

"In the Links, north from the Broadhill, Aberdeen, by the margin of the south lake" (B. G.).

Changes on that part of the Links have led to its extinction there; but it is still not rare on the low part east from East Seaton, though limited by the deposits of town-refuse to form the football ground. This plant also will probably disappear from the Links as a result of changes in the near future.

Adt. Ps. Ng B : : : O. Very local, on seacoast and in estuaries of Dee and of Don.

[**E. multicaulis**, *Sm.* Many-stemmed Club-rush.] Native; in marshes, very local, and not known from Aberdeen.

Adt. Ps. Ng : : : : O. "Bay of Nigg" (Beattie). "N. side, G. Baxter, 1813" (Knight). "Bay of Nigg" (Fl. Ab. and Beveridge hb., 1842), now extinct there.

Scotston Moor, not common.

Scirpus pauciflorus, *Lightf.* Few-flowered Club-rush. Native; on wet soils, and where water trickles over the surface.

"Roadside beyond Stocket" (Beattie). "King's Links, Deeside and Donside, common" (Knight). "Old Town Links, 1836" (Dickie hb.). "Marshy places by the Dee" (B. G.).

It is still common on the low part of the Links near the Don, where liable to be flooded by high tides, though a good part of the surface has been rendered unsuitable for it by deposition of town refuse. It seems to be extinct by the Dee, since the estuary was altered. It was probably common on the wet parts of the moors that formerly surrounded the city.

Adt. Ps. Ng B M : Nh : O. Common on some moors.

S. cæspitosus, *L.* Tufted Club-rush. Native on peaty moors.

"Stocket Moor, 1834" (Dickie hb.).

It is now very scarce in Aberdeen, lingering only in the remains of woodland near Queen's Road West; but it must have been abundant on moors within the parish.

Adt. Ps. In all; locally plentiful.

S. fluitans, *L.* Floating Club-rush, or Floating Mud-rush. Native.

"In a pool near Hilton, abundantly" (Harvey hb.).

I have never seen it within Aberdeen, where I believe it to have long been extinct.

Adt. Ps. Ng : (M) (P) : : O. Very local, and rarely plentiful.

S. setaceus, *L.* Bristle-stalked Mud-rush. Native; locally common on wet soils, where vegetation is thin.

“Passim in humidis, arenosis et paludosis” (Skene). “By a damside near Old Bridge of Dee, 1835” (Dickie hb.). “In moist places on the Links, north of the Broadhill, etc.” (Knight and Cow). “Stocket Moor” (B. G.).

Now very scarce within the parish; but probably often overlooked. I have found it as a weed in a garden in Old Aberdeen.

Adt. Ps. Ng B M P : D O. Local; sometimes abundant.

S. lacustris, *L.* Lake Club-rush, or Bulrush. Alien within Aberdeen.

In a pool in an old quarry near Hilton; probably a recent introduction.

Adt. Ps. : : : : : O. Only in the Corbie Loch where it is native and plentiful.

S. maritimus, *L.* Salt-marsh Club-rush. Native; in salt-marshes.

“Old Aberdeen Links near Donmouth, 1826” (Knight and Harvey hb.).

It still grows there, by the sides of the Tile Burn, and in shallow muddy pools on the low ground, liable to being flooded by high tides; but it is very local, and is not likely to survive the changes in progress at that part of the Links.

Adt. Ps. Ng B : : : : . Very local; at one or two places on the coast.

S. sylvaticus, *L.* Wood Club-rush. Native; among coarse vegetation by streams; local and scarce.

“In the Den of Rubislaw” (Cow).

This record is not confirmed, and may be erroneous; but the plant grows just outside the limits of Aberdeen, on the north bank of the Don, above the Old Bridge, as noted by Knight.

Adt. Ps. : : : : : (D) O. By the Don, in small amount. It is not uncommon in various places in the neighbouring counties.

S. rufus, *Schrad.* (*Blysmus rufus*, Link). Narrow-leaved Club-rush. Native; by the sea or estuaries, usually in turf apt to be flooded.

"In the Old Town Links" (Knight and N. Fl., which adds "in extremely small quantity"). "Formerly on the Links at Aberdeen, north from the Broadhill, and along with *Carex incurva*, Dr. Murray" (B. G.).

In 1869 and 1870 I found one or two examples among wet turf near the mouth of the Tile Burn; but I have not seen it again on the Links.

Adt. Ps. Ng B : : : : . Very local on the coast.

Eriophorum angustifolium, Roth (*E. polystachion*, L., in part). Narrow-leaved Cotton-grass. Native in bogs, and on wet moors.

"Passim in fossis" (Skene). "Moss of Ferryhill" (Knight, etc.). "Stocket Moor, 1835" (Dickie hb.). "In Pitmuxton Marsh" (Cow).

This species was no doubt as plentiful on the wet moors in Aberdeen formerly as it still is on similar moors all over the district. I have seen it within the parish only on Stocket Moor, before 1880, and on a wet part of Old Aberdeen Links, near Linksfield, where a few plants grew until 1904; but in that year the place was covered with town-refuse in the formation of a football ground. I do not know of its survival within Aberdeen.

Adt. Ps. In all; abundant on wet moors and in peat-bogs.

E. vaginatum, L. Hare-tail Cotton-grass. Native; on peat.

This no doubt grew on the moors in Aberdeen, before cultivation; but the only reference I can find to its doing so is in a manuscript list of Professor Knight, in which the name is included in a list of plants observed in Ferryhill Moss during an excursion with his class; but this record is rendered doubtful by its omission from a fuller list of the plants observed by him in various localities in and near Aberdeen. In this list *E. vaginatum* is not mentioned, though there is in it a list of the plants of Ferryhill Moss.

Adt. Ps. Ng B : P Nh D O. Local, but plentiful on some peat-mosses.

[**Schoenus nigricans**, L. Black Bog-rush.] Native on wet moors.

Not in Aberdeen, so far as records show.

Adt. Ps : (B) : : : O. Very local; but plentiful in a few places.

Carex dioica, L. Creeping Dioecious Sedge. Native; in bare wet places on moors.

Extinct probably in Aberdeen. "Old Town Links; below Bridge of Dee" (Beattie). "Stocket Moor, 1835" (Dickie hb.).

I saw it in the latter locality in 1870; but it disappeared when the moor was cultivated, becoming extinct apparently. It was probably not rare on the moors in Aberdeen formerly.

Adt. Ps. (Ng) : M P Nh : O. On moors where soil is wet with trickling water; rather common in a few places.

C. Davalliana, Sm. A specimen (still in the Linnean Society's possession) sent to Smith by Professor James Beattie, in 1800, with a letter, in which he gives the locality as "on a moor two miles west of Aberdeen," was called *C. Davalliana* by Smith, in the belief that it was the European species so named. In Beattie's copy of the Flora Scotia is a note, by him—"Roadside beyond Mitchell's, Stocket, S. side; trace the right side of the road from the burn eastward, where male and female spikes are found together." The specimen belongs to *C. dioica*, L. Cow mentions *C. Davalliana* as rare on the Links below the Broadhill; certainly in error.

C. pulicaris, L. Flea Sedge. Native; in natural pastures.

"Passim in humidis turfosis" (Skene). "Stocket Moor, 1835" (Dickie hb.).

This sedge was probably as common on grassy moors and in short natural pastures in Aberdeen as it still is in the surrounding district; but I have not seen it within the parish for several years, though it is probably not extinct in suitable habitats still to be met with inland.

Adt. Ps. In all; common in many places.

C. incurva, Lightf. Curved Sedge. Native; never common, and for years apparently extinct.

"Old Town Links, May-June, banks of y^e rivulet going to y^e low loch. Again, in immense quantity on the flat (upper end) which lies along the s. hills, creeping among sand which seems to have encroached upon the Links" (Beattie, MS. note in Flora Scotica). "In the Links of Aberdeen, in wet spongy soil, half a mile from the sea" (Beattie, in a letter to Smith, in 1800). "Old Town Links, 1825" (Harvey hb.). "In the Old Town Links, by a road leading through the sandhills a little north from the Broadhill" (Fl. Ab.).

One or two plants still survived in this latter place until 1870; but changes on the Links appear to have led to its extinction.

Adt. Ps. : B : : : : O. A few plants grew on the north shore of the estuary of the Don, near the Coastguard Station; but I have not seen any there since 1880.

C. arenaria, L. Sand Sedge. Native; in sandy soils by coast.

“Copiose in arena mobili” (Skene).

Abundant on the Links from Dee to Don, including the steep east side of the Broadhill.

Adt. Ps. (Ng) : : : : : O. Abundant on Links north of the Don.

[**C. diandra, Schrank** (*C. teretiuscula*, Good.). Lesser Panicked Sedge.] Native; in marshes, very local, and not plentiful.

No record for Aberdeen, though it not improbably occurred here.

Adt. Ps. : : : : : O. “Near Aberdeen” (Beattie). “Corsehill Moss” (Fl. Ab.). This locality is at the north end of Scots-ton Moor. It still is not uncommon in that moss, as well as in the marsh near Denmore.

C. vulpina, L. Great Sedge. Native; in wet sandy soils near the sea.

“Crescit in arenoso solo, inveni solummodo in the Old Town Links, near the Bents” (Skene).

It has long been extinct within Aberdeen.

Adt. Ps. Ng B : : : : O. Locally common on the rocky coasts of Kincardineshire, and by the estuary of the Don near the Coastguard Station.

[**C. muricata, L.** Greater Prickly Sedge.] Native; very local and scarce.

Not recorded from Aberdeen.

Adt. Ps. : B : P : : : . “Culter, 1842” (Beveridge hb.). This sedge may occasionally be found by the Dee and in sheltered nooks on the rocky coast of Kincardineshire.

C. echinata, Murray (*C. stellulata*, Good.). Lesser Prickly Sedge. Native; in moorland pastures and peat-mosses, and on damp links.

“Passim in pratis depressis humidis” (Skene, as *C. muricata*).

"Moss of Ferryhill, 1827" (Harvey hb.). "Pitmuxton Marsh" (Cow). "Stocket" (Fl. Ab.).

Though *C. echinata* must have been plentiful in Aberdeen formerly, it is now so rare as to seem in danger of becoming extinct here. It lingers in the remains of woodland near Queen's Road West; and I have seen a plant or two by the side of a road west from Hilton.

Adt. Ps. In all; abundant in suitable localities.

[*C. remota*, *L.* Distant-spiked Sedge.] Native; by the Dee, local and rare.

Not recorded from within Aberdeen.

Adt. Ps. : B M : : : .

C. canescens, *L.* (*C. curta*, Good.). White Sedge. Native; in peat-mosses.

"Moss of Ferryhill, 1827" (Beattie, Knight and Harvey). "Stocket, 1835" (Dickie hb.).

Probably common here formerly; this sedge appears to have become extinct in the parish.

Adt. Ps. In all; rather common in numerous mosses.

C. leporina, *L.* (*C. ovalis*, Good.). Oval-spiked Sedge. Native; in pastures, on grassy moors, and by roads and streams.

"Passim in humidioribus" (Skene). "On the Links" (Harvey). "Stocket Moor, 1835" (Dickie hb.). "Banks of Dee at the Old Bridge" (B. G.).

Occasional tufts of *C. ovalis* may still be seen in Aberdeen, in natural pastures, e.g., on the Links, and by Dee and Don, as well as by roadsides about Hilton, Rubislaw, Old Aberdeen, etc.; but it is now an uncommon plant here.

Adt. Ps. In all; rather widespread, but not plentiful. I have found the form possessed of bracts considerably longer than the inflorescence (*longibracteata*, Peterm.) growing sparingly with the type beside the Don near Stoneywood (Nh).

C. aquatilis, *Wahlenb.* Water Sedge. Native; by streams, and sometimes in marshes.

"Passim in locis humidis, ad margines stagnorum; in aqua stagnante crescens" (Skene, as *C. acuta*). "Muddy banks of the Don, 1835 (Dickie hb., as *C. acuta*, under which name it is also recorded in B. G.).

C. aquatilis is common by the Don, as var. *elatio*r, Bab. The true *C. acuta* does not grow near Aberdeen.

Adt. Ps. : : : P Nh D O. Local; abundant where it occurs, chiefly by the Don.

C. Goodenowii, *J. Gay* (*C. vulgaris*, Fr.). Common Sedge. Native; general in damp pastures by streams, and in swamps; abundant in places.

"Links, and Moss of Ferryhill" (Harvey).

Though still common on some parts of the Old Aberdeen Links, especially near Linksfield, its abundance there was much lessened a year or two ago by the deposition in the damp hollows of rubbish and earth to fill up the wet places. It is not infrequent in the inland parts of Aberdeen, and on wet places on the banks of the rivers and smaller streams; but it must have been much more abundant on the undrained surface formerly. It varies much in size in response to its environment, and also in colour of its spikelets, one variety (*melæna*, Wimm.) having the glumes and utricles almost black, while another (*chlorostachya*, Reich.) has them almost wholly green.

Adt. Ps. In all; abundant in many localities.

C. flacca, *Schreb.* (*C. glauca*, Scop.). Glaucous Heath Sedge. Native; in pastures, on moors, on slopes, along rocky coasts, etc., in wet soil.

"Seaside, Torry" (Harvey). "Banks of Dee and Don, etc." (Dickie).

Much less common in Aberdeen than it had been formerly; but still to be found on wet parts of Old Aberdeen Links, on wet slopes by the Don and the Dee, on the coast east of Torry, etc.

Adt. Ps. In all; common in suitable habitats.

C. pilulifera, *L.* Round-headed Sedge. Native; in dry natural pastures.

"Rubislaw" (Beattie). "Stocket Moor" (Knight and Dickie hb.).

I had no record of having seen this in Aberdeen since the cultivation of Stocket Moor until I found a few plants in 1910 on a moist bank near the Paper Works, Woodside. It must have been not uncommon on the moors formerly.

Adt. Ps. In all; common on dry moors, and also on the Links north of the Don in a few places.

C. caryophyllea, *Latour* (*C. verna*, Chaix, *C. præcox*, Jacq.). Vernal Sedge. Native; in natural pastures among short herbage, in early summer chiefly.

“Old Aberdeen Links” (P. M.). “Robslaw Den, Mr. R. Mac-kay” (B. G.).

I have not found this sedge in Aberdeen; nor have I seen an example in any herbarium from the parish. The Links record is probably due to misidentification of small examples of *C. Goode-nowii*; while that from “Robslaw Den” must be regarded as not certain.

Adt. Ps. : : M P : : : . Local; probably often overlooked.

[**C. pallescens**, *L.* Pale Sedge.] Native; in woods and on damp grassy moors.

There is no record of this as found within Aberdeen, though it had very probably grown here, and may be found by the Don or elsewhere.

Adt. Ps. (Ng) : M : : : O. “N. Bank of Don above the Bridge, 1842” (Beveridge hb.). Not common anywhere in this district.

C. panicea, *L.* Pink-leaved Sedge. Native; on peaty moors, and in wet pastures, by streams, etc., abundant in suitable habitats.

“Passim in paludosis” (Skene). “Torry” (Harvey). “Stocket Moor and banks of Dee, 1835” (Dickie hb.).

Though certainly plentiful formerly in Aberdeen, this sedge is now rare; but it grows on the remnants of moorland west of Rubislaw, and on braes by the Dee east of Torry.

Adt. Ps. In all; general, and often abundant.

C. pendula, *Cow non* Huds. Great Pendulous Sedge.

“In the wood of Auchmill; in the Den of Maidencraig; at Rubislaw, etc.” (Cow).

These entries probably refer to *C. helodes*, which Cow does not mention; they certainly do not belong to *C. pendula*, which does not grow near Aberdeen.

C. sylvatica, *Huds.* Pendulous Wood Sedge. Probably native; very local under trees.

“Near Aberdeen, in Seaton Woods. Dr. A. Fleming” (B. G.).

It still grows in the grounds by the north avenue to Seaton House, several plants being scattered on a grassy bank below trees.

It may be native there, as it certainly is in a few places in the neighbouring counties ; but it is associated with several plants (*Arum maculatum*, *Narcissus Pseudo-narcissus*, and others) that are certainly not native, though now growing apparently wild ; hence the sedge also may have been introduced.

Adt. Ps. : : : : : O. "Bridge of Don cliffs, rare" (Knight). "In the wood at Old Bridge of Don. Rare" (Fl. Ab.). There is no reason to doubt its being native on the north bank of the Don, and this supports the likelihood of its being native in Seaton. It appears to have died out at the Don ; at least I have never seen it growing there, though I have often sought for it.

C. helodes, *Link* (*C. laevigata*, Sm.). Smooth-stalked Sedge. Native ; on wet slopes, in woods or by streams ; very local.

"Marshes near Aberdeen, Prof. J. Beattie, junr." (Smith's Fl. Brit., 1804, p. 1005). "Rubislaw, 1826" (Harvey hb.).

It appears to be extinct within Aberdeen.

Adt. Ps. : B M P Nh D O. Very local, but in plenty in some limited habitats.

C. binervis, *Sm.* Green-ribbed Sedge. Native on drier moors, and in rough natural pastures.

Originally described by Smith from specimens sent to him by Prof. James Beattie, Jun., as "very common on the driest moors about Aberdeen, Rubislaw, etc." "Den of Rubislaw, 1827" (Harvey hb.). "Stocket Moor, 1835" (Dickie hb.). Skene appears to have observed it from his record "in ericetis, vel pendula v. sylvatica."

Still to be found in woods west of Rubislaw ; occasionally among rough herbage by roads near Hilton, Rubislaw, Ruthrieston, etc., and in some plenty on a damp bank near the Paper Works, Woodside. Its abundance in Aberdeen is, however, of the past only.

Adt. Ps. In all ; very frequent.

[**C. distans**, *L.* Distant-spiked Sedge.] Native ; only near the sea, in wet places on rocky coasts.

Not recorded from Aberdeen, though it may have grown about the estuary of the Dee formerly.

Adt. Ps. Ng B : : : : . On sea-coast.

C. fulva, *Host.* (*C. Horschuchiana*, Hoppe). Tawny Sedge. Native ; on wet soil, on moors, etc.

"Stocket Moor" (Knight, and Dickie hb.).

The Tawny Sedge appears to be extinct in Aberdeen, north of the Dee, though it must have been common on the wet moors. Stocket Moor seems to have been its last habitat within the parish.

Adt. Ps. Ng : M P Nh D O. Locally common on wet moors.

C. flava, *L.* Yellow Sedge. Native on wet soils, on moors, wet banks, etc.

"Vulgatiss. in paludosis" (Skene). "Pitmuxton Marsh" (Cow). "Stocket Moor, 1835" (Dickie hb.).

This sedge also, though once abundant in Aberdeen, is becoming scarce here. It still is moderately common on the low part of the Links near the Don; and it may be found here and there by the margins of the rivers, sparingly.

Adt. Ps. In all; general and frequent.

Var. **Oederi**, *Retz.* "Oldtown Links near Don-mouth, 1850" (P. M. hb.).

Still there, sparingly.

Adt. Ps. Ng : : : : O. Not very common.

[**C. hirta**, *L.* Hairy Sedge, or Hammer Sedge.] Native; in light soil, usually by streams.

Not recorded from Aberdeen, though it might be expected on the Links and by the Don.

Adt. Ps. (Ng) (B) : : : D O. Very local; common in a few places by the Don.

[**C. paludosa** (Lesser Common Carex).] "On the banks of rivers and ditches, common; on Deeside above the bridge; in a ditch below Gallowhill; in Pitmuxton Marsh, Millden, etc." (Cow).

This sedge is one of the most local in this part of Scotland, the only native examples known within twenty miles of Aberdeen growing on the coast south of Muchalls. It is difficult to conjecture what Cow's plant may have been. Possibly it was *C. flacca*, which he does not mention.

[**C. riparia** (Great Common Carex)]. "On the sides of ditches and rivers, common; in Pitmuxton Marsh; in ditches above the braes of Pitfodels; in Millden, etc." (Cow). This is another of Cow's misnomers, as *C. riparia* does not grow near Aberdeen. The plant intended by him may have been *C. inflata*, which he omits from his "Catalogue."

C. inflata, *Huds.* (*C. ampullacea*, Good.). Bottle Sedge. Native; near streams and in swamps and pools.

“Dam of Gilcomston” (Beattie). “Moss of Ferryhill, 1803” (Knight hb.). “North bank of Dee” (Dickie hb.).

It is now scarce in Aberdeen, where it must have been very common formerly; but still grows in Walker’s Dam.

Adt. Ps. In all; abundant in suitable habitats.

[*C. vesicaria*, L. Bladder Sedge.] Native in similar habitats to the last species; extremely local in this neighbourhood.

Not recorded from Aberdeen.

Adt. Ps : B : : : : . In a ditch near the high road almost south from the foot-bridge at Cults.

GRAMINEÆ.

Panicum Crus-galli, L. Casual, on town-refuse. Native in warm zone; widely dispersed as a weed of cultivated and waste ground in tropic and warm temperate zones, and sometimes extending into cooler climates.

“On the Inch, introduced in ballast” (N. Fl.).

I have found it, in 1893, on the old bed of the Dee, and in 1904 on Old Aberdeen Links.

Adt. Ps. : : : P : : : . Near Culter, in 1904, casual.

P. sanguinale, L. Hairy Cock’s-foot, or Finger-grass. The same remarks apply to this as to *P. Crus-galli*.

“On the Inch. Rare. Introduced in ballast” (Dickie, 1838).

P. miliaceum, L. Millet. A frequent casual in recent years on town-refuse. Perhaps native in S.W. Asia and in Egypt; cultivated widely in the warmer zones, and thus dispersed through and beyond them as a weed or casual.

First observed in Aberdeen by me as a weed on the old bed of the Dee, in 1893. It reappeared there almost every year until the extension of railway lines covered the ground. It has also appeared very frequently on town-refuse on the Links and on the roads and new streets being formed in Rubislaw, Ferryhill, etc. In warm seasons it flowers and may produce seeds; but its recurrence is probably due in almost all cases to seeds newly thrown out, possibly in siftings.

Setaria viridis, Beauv. Green Bristle-grass. Casual. Probably native in E. Asia; widely dispersed as a weed of cultivated and waste ground in the temperate zones.

"On the Inch. Rare. Introduced in ballast" (Fl. Ab.).

I have found it on town-refuse on the old bed of the Dee, in 1893, and on Old Aberdeen Links in 1905.

S. verticillata, Beauv. Rough Bristle-grass. Casual. A weed of cultivated and waste ground throughout the warmer, temperate, and subtropical zones; native country uncertain.

"On the Inch" (Roy).

Zea Mays, L. Maize, or Indian Corn. Casual on town-refuse, from seed thrown out; native of S. America; cultivated almost throughout the warmer zones, into the temperate regions.

On the old bed of the Dee, and on the Links. It rarely grows beyond the seedling stage.

Spartina Townsendii, Groves. On 30 June, 1915, a supply of living plants was forwarded to me by Mr. G. K. Sutherland from near Southampton. Of the plants I put about ten into muddy spots on the upper parts of the island in the Don above the New Bridge on evening of 30 June. On evening of 1 July, 1915, I put about nine into the muddy shore of S. bank of the Don below the New Bridge, scattering them over about 250 yards' distance.

Phalaris arundinacea, L. Reed Canary-grass. Native; by streams and pools, less often in swamps.

"Ad ripas fluminum" (Skene). "In the Dee, near the Old Bridge, 1835" (Dickie hb.).

Frequent along the Don, by the Tile Burn on Old Aberdeen Links, and near Walker's Dam; not common beside the Dee below the Old Bridge. Occasionally a striped-leaved variety, "Gardeners' Garters," occurs by streams or on rubbish-heaps; but only as an outcast or escape from gardens.

Adt. Ps. In all; locally plentiful by streams, etc.

P. canariensis, L. Canary-seed-grass. A very common casual on town-refuse, usually from its use as food for caged birds. Native in N. Africa, and widely dispersed as a weed of cultivated and waste ground.

"Often met with, but undoubtedly introduced" (N. Fl.).

It flowers here freely, but rarely seems to ripen seeds; hence its recurrence is due to seeds newly introduced in rubbish or cast out each year.

Adt. Ps. ; : : P Nh D : . Only as a casual.

P. cærulescens, Desf. Casual on refuse; native in S.E. Europe, and dispersed as a weed of cultivated and waste ground.

First observed by me in 1893, near Aberdeen, on the old bed of the Dee, and in subsequent years there and on old Aberdeen Links; not common.

Anthoxanthum odoratum, *L.* Sweet-scented Vernal-grass. Native; on grassy moors and in natural pastures.

Too common to require citation of records or localities.

Adt. Ps. In all; abundant.

Alopecurus myosuroides, Huds. (*A. agrestis*, *L.*). Slender Fox-tail-grass. A not infrequent casual on town-refuse. Native in Central and S. Europe; an immigrant weed of cultivated and waste ground in Britain.

"Links" (Knight). "Upon the Inch at Aberdeen, probably transported with ballast" (N. Fl.).

It has been one of the more frequent casuals in recent years on the old bed of the Dee, on Old Aberdeen Links, etc.

Adt. Ps. Ng : : : (D) (O). A rare casual on rubbish.

A. geniculatus, *L.* Floating Fox-tail-grass. Native in pools, by ditches and streams, and on wet soils.

Too general and frequent to require citation of records or of localities, though less plentiful than it must have been before drainage of the surface.

Adt. Ps. In all; abundant in suitable habitats.

A. pratensis, *L.* Meadow Fox-tail-grass. Native; in pastures, often sowed in artificial pastures.

"Crescit vulgo in pratis" (Skene).

Too general to require citations, but seldom plentiful in natural pastures.

Adt. Ps. In all; common.

[**Milium effusum**, *L.* Spreading Millet-grass.] Native in the district; but rare.

Not recorded from Aberdeen.

Adt. Ps. : : : : (O). Found by J. Sim near Scotston.

Phleum pratense, *L.* Common Cat's-tail or Timothy-grass. Native in Scotland, but near Aberdeen not often seen except in artificial pastures, in which it is often sowed, or where it might readily

have been introduced unintentionally by man; hence perhaps a denizen.

"Hilton, 1807" (Knight hb.). "In fields and meadows, not uncommon" (N. Fl.). "Sides of fields, etc.; on Donside west of Seaton; on a roadside near Ferryhill; on the roadside a little east from Friendville; at Belleville; side of a field on the road leading to Grandholm from Old Aberdeen, etc." (Cow). "Fields at Kittybrewster, not common" (Fl. Ab.).

Uncertain in its occurrence near Aberdeen; usually in cultivated fields, or on waste ground or town-refuse. It is now common on Old Aberdeen Links, having been largely introduced with other grasses.

Adt. Ps. In all; but under similar conditions as to dispersal to those described above.

Var. nodosum, (L.). Native; in pasture on poor soil.

"At Footdee and Holburn Street" (N. Fl.).

Adt. Ps. : : : : Nh D : . By the Don near Dyce; not common.

* *P. tenue*, Schrad. Casual on town-refuse. Native in S. Europe.

A few examples were found by me on Old Aberdeen Links, in 1907.

P. arenarium, L. Sea Cat's-tail-grass. Native on sandy soils near sea.

"Near Aberdeen, George Don" (N. Fl.). "Formerly on Old Aberdeen Links" (B. G.).

Agrostis canina, L. Brown Bent-grass. Native; on moors, and in natural pastures; lessened in frequency by cultivation of the surface.

"On moist moors near Aberdeen" (N. Fl.).

General in the district on grassy moors, in woods, and often by roads, though less abundant than its congeners; now become very scarce within Aberdeen.

Adt. Ps. In all; general, and in some localities plentiful.

A. alba, L. (*A. palustris*, Huds.). White Bent-grass. Native; on damp soils, or floating in shallow water.

"Rubislaw" (Knight). "On the Links, north of the Broadhill" (Cow). "Frequent about Aberdeen" (B. G.).

Too general in suitable habitats to require citations of localities, though lessened in abundance by drainage.

Var. *stolonifera* (L.). "In arena mobili frequens. On low wet sands, on Old Town Links, near mouth of the Don, July 29, 1765" (Skene). Still common there, as well as in other suitable habitats.

Var. *maritima* (Meyer), by the coast.

Adt. Ps. This species is common in all; and the varieties in their distinctive habitats.

A. *tenuis*, Sibth. (*A. vulgaris*, With.). Fine Bent-grass. Native; extremely common in both natural and artificial pastures, especially on poor soils.

Too plentiful to require citations of records or localities.

Var. *pumila* (L.). A dwarf form is common in the district on bare soils, including roadways, though scarce within Aberdeen. There is a good example of it in the Beveridge hb., gathered in 1842 on the Links. In this form in N.E. Scotland I always find the ovaries enlarged, blackened, and filled with the globular dark spores of a fungus (*Tilletia decipiens*, Pers.).

Adt. Ps. Both species and dwarf form are common in all.

Apera Spica-venti, Beauv. Silky Bent-grass. A common casual in recent years, on town-refuse. Native in Central and S.E. Europe; grown as an ornamental grass in gardens, hence scattered as a weed, and also probably introduced with seeds of agricultural plants as a weed.

First observed in this vicinity by myself, in 1893, on the old bed of the Dee, it has since then been frequent there, and on refuse on the Links, and in Rubislaw, Ferryhill, etc.

Adt. Ps. : : : : D O. On waste ground near Dyce Station.

Ammophila arenaria, Link. (*Psamma arenaria*, R. et S.). Common Sea-reed or Marram; locally "Bents." Native on sands by the sea.

This is one of the earliest mentioned of our native plants, its importance in binding the loose sands on the coast having led to its protection by legal enactments against its being destroyed. It is confined to the sandy coast, especially to the outer sand-dunes,

though also on the east side of the Broadhill, and on the bare parts of the inner dunes.

Adt. Ps. ::::: O. Abundant on the Links north of the Don.

Aira caryophyllea, *L.* Silvery Hair-grass. Native; on dry banks, earthen dykes, thin pastures, etc.

"In sterilioribus" (Skene). "Near Aberdeen in many places. Rubislaw Quarry" (N. Fl.).

Generally distributed; plentiful here and there. A form with numerous stems crowded together (apparently *multiculmis*, Dum.) has been found by me once or twice near Aberdeen, perhaps introduced with grass seeds.

Adt. Ps. In all; locally plentiful.

A. praecox, *L.* Early Hair-grass. Native; like *A. caryophyllea* in distribution.

"Old Town Links, 1835" (Dickie hb.).

General, often plentiful, e.g., on walls of earth and on dry banks in early summer.

Adt. Ps. In all; general, and plentiful in suitable habitats.

A. (Deschampsia) caespitosa, *L.* Tufted Hair-grass. Native; in damp soils, by streams, in woods, in meadows, by roads and on waste ground.

Too general and common to require citation of records or localities.

Adt. Ps. In all; common.

[**A. (D.) setacea**, *Huds.* (*A. uliginosa*, Weihe, *D. discolor*, R. et S.). Bog Hair-grass.] Native; on wet moors, in marshes and round pools, often rising out of water.

It has not been recorded from Aberdeen; but it was not distinguished from its allies as a British species until comparatively recent years; and it probably grew on the wet moors that once covered so much of the parish, as it still does only a little way beyond our limits.

Adt. Ps. Ng B : : Nh D O. Plentiful in Nigg, especially round the Loch of Loirston; local and seldom frequent elsewhere.

A. (D.) flexuosa, *L.* Waved Hair-grass. Native; on moors, in woods, etc.

"Passim in siccioribus et sterilioribus" (Skene). "At Rubislaw" (Cow). "Stocket Moor" (Fl. Ab.). "Links, 1840" (Laing hb.).

This must have been abundant in Aberdeen formerly, though no longer so, and now almost confined to a few places west of Rubislaw and near Hilton.

Adt. Ps. In all ; very common, on moors and in woods.

Holcus mollis, *L.* Creeping Soft-grass. Native ; in woods and pastures ; occasionally plentiful, though much less abundant than *H. lanatus*.

"Passim in pascuis" (Skene). "Corn-fields near Old Town Links and Rubislaw Den, 1835" (Dickie hb.). "In a meadow west of Seaton ; in the Links near the Broadhill" (Cow).

Still frequent under trees, by the borders of fields, etc., by the Don, about Hilton, Rubislaw, and elsewhere.

Adt. Ps. In all ; general, and often plentiful.

H. lanatus, *L.* Meadow Soft-grass or Yorkshire Fog. Native ; a too abundant weed of both natural and artificial pastures, sides of fields, etc.

Everywhere common.

Adt. Ps. In all ; too plentiful.

Trisetum flavescens, Beauv. (*T. pratense*, *Pers.*). Yellow Oat-grass. Uncertain in its appearance about Aberdeen, and probably alien.

"Aberdeen Links, near the Broadhill, Mr. James Farquharson ; Summerhill, Mr. A. Smith ; Rubislaw Den, Mr. R. Mackay ; Donmouth and above the New Bridge, on the south side of the river, Prof. Macgillivray" (P. M.) "South-east from the Broadhill, Rev. J. Farquharson ; I have seen it abundantly at this station ; it is probably now extirpated" (B. G.).

I have seen it in plenty on a lawn in Old Aberdeen, in 1876, in fair abundance on sandhills north-east from the Broadhill, in 1891, and occasionally as a casual on town-refuse here and there around Aberdeen. It seldom holds its place for more than a year or two ; and there seems reason to believe that in every case it has sprung from newly introduced seeds, and must be classed as a casual only.

Adt. Ps. : : : (P) Nh D (O). Almost certainly introduced with grass-seeds.

Avena pubescens, *Huds.* Downy Oat-grass. Native ; on rough banks ; may have become extinct in Aberdeen.

"Old Aberdeen" (Knight). "On a steep bank by the side of a

field at the east end of Powis" (Fl. Ab.). "By the Don near Seaton House, 1818" (W. M. hb.).

The habitat near Powis has for years ceased to exist, owing to the removal of sand from a sandpit on the site. I have seen this grass within Aberdeen only on an island below the cruives on the Don near Gordon's Mills and by the Don above Woodside in small quantity.

Adt. Ps. Ng B : : Nh D O. Though not common, it is rather general on the rocky coast, and occurs in various places by the Dee and the Don.

[*A. pratensis*, L. Narrow-leaved Oat-grass.] Native; in rough natural pastures, on the coast, and by the Dee; local and rather scarce.

Not recorded from Aberdeen.

Adt. Ps. Ng B : : : O. Nowhere abundant.

A. sativa, L. Common Cultivated Oat. A frequent casual on town-refuse, on manure-heaps, on waste ground, by fields and roads, etc. Native land uncertain; widely dispersed as a field crop, and as fodder. Several varieties have appeared as casuals around Aberdeen.

A. orientalis, Schreb. Tatarian Oat. In recent years this also has become a common casual with *A. sativa*, which it resembles in its native land being uncertain and in its dispersal by cultivation as a field crop.

A. strigosa, Schreb. Bristle-pointed Oat. Casual or sub-colonist, as a weed in corn-fields. Appears to be native in Asia near the Caspian Sea; dispersed over Europe and elsewhere by cultivation formerly, now cultivated only in cold poor soils.

"Corn-fields near Old Town Links, 1835" (Dickie hb.).

A rather frequent weed of crops in N.E. Scotland; possibly relict from former cultivation in this district.

Adt. Ps. In all.

A. fatua, L. Wild Oat. Casual. Native country uncertain; known only as a weed of cultivated soils or on waste ground; widely dispersed by agriculture as a weed among cereals.

Chiefly on town-refuse, e.g., on old bed of Dee in 1893, and in subsequent years there, on Old Aberdeen Links, and elsewhere.

Adt. Ps. Ng : : P Nh : : . A rare casual.

Arrhenatherum elatius, *Mert. et Koch* (*A. 'avenaceum*, Beauv., *Avena elatior*, L.). Tall Oat-grass. Native ; among coarse vegetation on the banks of streams and borders of thickets.

The variety with cylindrical rather slender rhizomes is not frequent near Aberdeen ; but I have found it by the Dee and the Don, and on the Links. Skene says of it : " In ripis Don prope pontem invenio gramen huic " (the var. *tuberosum*), " omnino conveniens nisi radice qui omnino fibrosus est, nullo tuberi."

Adt. Ps. Ng B M : Nh : O. Not common.

Var. **tuberosum**, *Gilib. (precatorium, Thuill.)*, locally called " Knot-grass," because of the spherical internodes of the rhizome.

" Passim arborum infelix incola " (Skene).

A too abundant weed of cultivated soil, the swollen internodes, each with a bud growing from it, enabling the buds to develop into new plants if the rhizome is broken into parts in agricultural operations.

Adt. Ps. In all ; too abundant.

Sieglingia decumbens, *Bernh.* Decumbent Heath-grass. Native ; scattered over grassy moors, and in short herbage of natural pastures.

" In sterilioribus pascuis " (Skene, under *Festuca*). " Old Town Links " (Knight). " Stocket Moor, 1835 " (Dickie hb.). " Broad-hill " (Cow).

A scarce grass now within Aberdeen, growing in small amount on the Links, and on the remains of moorland and natural pastures in the west part of the parish. It was no doubt general on the moors formerly.

Adt. Ps. In all ; general, and not scarce in suitable habitats.

Gaudinia fragilis, Beauv. Casual on town-refuse. Native in the Mediterranean region ; and probably brought among agricultural seeds.

A few on Old Aberdeen Links in 1903.

Phragmites communis, *Trin.* Common Reed. Native ; in swampy soil and in shallow water.

" In Pitmuxton Marsh " (Cow).

Extinct within Aberdeen, though probably not uncommon here formerly.

Adt. Ps. Ng B : : : D O. Very local ; but plentiful in a few places.

Cynosurus cristatus, L. Crested Dog's-tail-grass. Native ; in pasture.

"Passim in pascuis" (Skene).

In natural pastures, on waste ground, and often sowed in artificial pastures and lawns ; general and common.

Adt. Ps. In all ; plentiful.

C. echinatus, L. A very rare casual, on town-refuse, native in the Mediterranean area and W. Europe to the English Channel.

Found by me, in 1909, on Old Aberdeen Links, and again, in 1914, on refuse by new road from Old Aberdeen to the Links.

Koeleria cristata, Pers. Crested Koeleria. Native ; in dry pastures.

"Passim in siccioribus" (Skene). "Broadhill, and Craiglug" (Knight). "Old Town Links, 1835" (Dickie hb.).

Under the name *K. cristata* were included several forms, which have recently been studied more critically, and distinguished by names. Of these the only one that I have met with near Aberdeen is *K. gracilis*, Pers., var. *britannica*, Domin.

Adt. Ps. Ng B : P : : O. Chiefly on the coast where it is rather plentiful ; only var. *britannica*, occurring near Aberdeen, so far as I have seen.

K. phleoides, Pers. Casual on town-refuse. Native in Central and S. Europe.

A few in 1908 on Old Aberdeen Links.

Molinia cærulea, Moench. (*M. varia*, Schrank). Purple Melic-grass. Native ; on wet moors, and in woods.

"Rubislaw" (Knight).

No doubt rather common in Aberdeen formerly ; now nearly extinct, restricted apparently to the small wood near Queen's Road West.

Adt. Ps. Ng B M P Nh : O. Local ; but plentiful in some localities. Var. *depauperata* (Lindl.) grows on bare parts of some damp moors, e.g., on Scotston Moor and on Crynoch Moor.

Catabrosa aquatica, Beauv. Water Whorl-grass. Native ; in pools and ditches, very local.

Possibly extinct in Aberdeen.

"Ditches at Aberdeen ; Bowl Road" (Beattie). "Said to occur occasionally around Aberdeen" (N. Fl.). "In a ditch at the

west border of the Old Town Links, a little south from the Brickwork, 1835" (Dickie hb.).

For a number of years it seemed to have disappeared from the Links; but in 1885 it grew in profusion in and around the upper of the two pools called "Cannysweet pot," near Linksfield, and into the ditch flowing into the pool. For some years it appeared to thrive there, though much eaten by cattle, to whom it seemed very attractive. The pool and ditch have been filled up, and with them the grass has disappeared. It seems no longer to exist on or near the Links, its only known habitat in the parish.

Adt. Ps. : : : (P) : : O . Very local, and uncertain in its occurrence.

[*Melica nutans*, L. Mountain Melic-grass.] Native.

Local, in the upper valley of the Dee, and along the river in its lower part from fruits brought down stream. Not recorded from Aberdeen.

Adt. Ps. : : M : : : : . Not common in the lower part of the valley.

[*M. uniflora*, L. Wood Melic-grass.] Native; in woods, rare.

Not recorded from Aberdeen.

Adt. Ps. "At the foot of the steep bank at the Bridge of Culter" (Cow). Not confirmed since; hence a doubtful record.

Dactylis glomerata, L. Cock's-foot-grass. Native among coarse herbage by streams, in woods, etc.; often sowed in permanent pastures.

"Waysides and shaded places, but not always common. At Aberdeen, on the banks of the Canal, and at the sides of the road between the Broadhill and Canal, etc." (N. Fl.).

It appears to have become much more frequent since 1836.

Adt. Ps. In all; common, usually abundant.

Briza media, L. Common Quaking-grass. Native; in natural pastures.

"Banks of Dee near the Old Bridge, Mr. J. Henderson. Rare" (Fl. Ab.).

Common in many places up the valley of the Dee, this grass is rare near Aberdeen.

Adt. Ps. : B (M) (P) : : O . Local, by the Dee, and on one spot on sand-dunes some miles north of the Don.

B. maxima, L. Great Quaking-grass. Casual on town-refuse. Native in S. Europe; often grown as an ornamental grass in gardens.

On Old Aberdeen Links, in 1903 and subsequent years, possibly from seeds outcast among sweepings from a seedsman's stock.

B. minor, L. Least Quaking-grass.

The same remarks apply to this as to *B. maxima*.

Poa annua, L. Annual Meadow-grass. Native; abundant on all rather bare soils, and a very prevalent weed of cultivated ground. Too plentiful to require citation of records or localities.

Adt. Ps. In all; abundant.

P. nemoralis, L. Wood Meadow-grass. Native; under shade of trees, local and not common. It occurs as a casual on rubbish-heaps, as on the old bed of the Dee and on Old Aberdeen Links.

"Passim in umbrosis inter arbores" (Skene). "In a wood west from town" (Cow, a doubtful record).

I have seen it on a wooded bank by the Don above Woodside in 1902, not common, and by the West Burn of Rubislaw, a few plants in 1908; also on town-refuse on old bed of Dee in 1893, and on Old Aberdeen Links in 1902 and subsequently.

Adt. Ps. : B M P : : O. Local, and not common.

P. compressa, L. Flat-stalked Meadow-grass. Probably a casual only in Aberdeen, on old walls and town-refuse; though native in Britain.

"Broadhill, and sides of the adjoining fields, on banks below the Bridge of Don" (Cow).

It has not been observed by anyone in these localities, or in any other of several mentioned by Cow from the vicinity of Aberdeen; hence it is probable that he was mistaken in this case, as in a good many other of his identifications. I have found it a rather frequent casual on town-refuse, on the old bed of the Dee, on Old Aberdeen Links, etc.; and in 1900 I observed it on the walls of an old shed near a mill by the Don below Hayton. On the walls it established itself securely, and became more abundant year by year until 1913 when the shed was removed.

In July, 1915, a few plants grew by the roadside near the entrance to Persley Quarry, in O.

Poa pratensis, L. Smooth-stalked Meadow-grass. Native ; very common in moderately dry natural pastures, on earth walls, waste ground, etc.

“Passim in pratis” (Skene).

Abundant ; often in sowed lawns and other artificial pastures.

Adt. Ps. In all ; abundant.

Var. **subcaerulea** (Sm.). In dry pastures, especially common on sand-dunes on the links, helping to bind the sand.

P. trivialis, L. Rough-stalked Meadow-grass. Native ; common in moist soils, often forming a considerable part of the herbage on them.

“Passim ad vias et in pascuis” (Skene).

General, though scarcely so abundant as *P. pratensis*.

Adt. Ps. In all ; plentiful.

P. Chaixii, Vill. (*P. sudetica*, Hænke). Native in Europe ; reported from numerous localities in England and S. Scotland, but probably introduced among seeds of other grasses.

In July, 1909, I found it growing tall and strong among other grasses in a field behind the Chanonry, in Old Aberdeen ; but there is no record of its time or mode of introduction there.

Glyceria fluitans, R. Br. Floating Meadow-grass. Native in and beside pools and sluggish streams and ditches. Still common, but must have been much more so formerly in Aberdeen, before drainage. The records for *G. fluitans* probably include *G. plicata*.

“Rubislaw” (Knight). “Old Town Links, 1836” (Dickie hb.). “Frequent in the Canal near Aberdeen, etc.” (N. Fl.). “Pitmuxton Marsh ; west of Seaton, etc.” (Cow).

It still grows by the Don, from Seaton upwards, in pools near Hilton, etc. ; but it is now much less common in Aberdeen than in the adjacent country. It is extremely liable to the attack of ergot (*Claviceps purpurea*) in the ovaries.

Adt. Ps. In all ; frequent.

G. plicata, Fr. Folded-leaved Meadow-grass. Native in similar habitats to those of *G. fluitans*.

I have gathered this at Walker’s Dam.

Adt. Ps. Ng : : : : . In ditches and pools in the neighbourhood of the Loch of Loirston.

The hybrid *fluitans* x *plicata* (*pedicellata*, Towns.), is not un-

common in and near Aberdeen, e.g., in the marsh on Old Aberdeen Links, in ditches in Nigg, etc.

G. aquatica, Wahlb. Reed Meadow-grass. A denizen in Aberdeen. Native in the N. temperate zone, including great part of Britain.

The history of the extension of range of this grass in the vicinity of Aberdeen is rather interesting. It is as follows: "In a pond at Breda, in Alford; but probably introduced" (N. Fl.). "In a pond in the wood a little west from the Castle of Drum. Rare" (Fl. Ab.). "Pond at Breda in Alford, from which it has escaped into the river Don, and is now naturalised on its banks several miles below Breda, Rev. J. Minto" (Dickie in B. G., among "introduced plants"). It appeared by the Don as far down as Persley about 1880, at first a few scattered plants, no doubt sprung from seeds brought down the river, but soon spreading to form beds of tall stems and leaves, forming in many places a continuous belt along the shores and crushing out and killing the native herbage of the banks. Patches of *G. aquatica* have now come as far down the estuary as the life-boat house near the mouth of the river; and there are two clumps in the marsh on the Links near East Seaton. It has also appeared on the Links to the north of the Don, at the mouths of burns that open into the sea some miles from the Don. On the Dee the progress has been less rapid; but it is fairly plentiful in backwaters near Murtle, and I found a patch in 1902 on the south bank of the Dee, about two miles above the Bridge of Ruthrieston. I am not aware of its having yet appeared by the Dee within Aberdeen, the shallow rapid current and stony bottom of the river not favouring its gaining a hold.

Adt. Ps. : B : P Nh D O. Abundant by the Don; locally by the Dee.

G. maritima, Wahlb. Sea Meadow-grass. Native; in pasture of salt-marshes, by coast and in estuaries.

"Old Town Links" (Beattie). "Donmouth" (Knight). "Old Town Links, north end, 1835" (Dickie hb.). "Estuary of the Dee, between Craiglug and the sea" (N. Fl.).

The changes in the estuary of the Dee have led to its almost complete extirpation there; but it is still somewhat common on the low damp part of the Links near the Don, though likely to be greatly reduced in amount, if not extirpated, there in a few years by the limitation of the area liable to be flooded at high tides.

Adt. Ps. Ng B : : : O. Local, and not frequent on rocky coasts ; rare on north shore of the estuary of the Don.

G. distans, *Wahlb.* Reflexed Meadow-grass. Possibly native on the Links ; a scarce alien on town-refuse.

"On sandy ground, especially near the coast, in a marsh near the Links Brickwork" (Cow). An untrustworthy record owing to Cow's very frequent inaccuracy.

I have seen this in very small quantity, on sand-dunes on Old Aberdeen Links since 1880, and on the old bed of the Dee in 1893 and in following years. It was not uncommon by the Dee east of the Victoria Bridge in 1910.

Adt. Ps. : : : : O. On Balgownie Links ; scarce.

G. Borreri, Bab. Borrer's Meadow-grass. Casual on town-refuse. Native on the coasts of Continental Europe along the North Sea and of E. and S. England.

On town-refuse on Old Aberdeen Links in 1905, a few plants.

Festuca procumbens, Kunth. Procumbent Meadow-grass. Alien in Aberdeen. Native in N. temperate zones, including England.

"*Poa procumbens* (Procumbent Sea Meadow-grass), in wet places and ditches ; under Balgownie ; in a pond and ditch a little south the Links brickwork" (Cow ; so far as one can judge this was *Glyceria maritima*, which is not mentioned by Cow).

In 1906 *F. procumbens* grew abundantly on the north bank of the new channel of the Dee, east of the Victoria Bridge, where grasses had been sowed to form a turf ; and it also appeared rather plentifully on the surface of parts of Old Aberdeen Links, near Linksfield, where town-refuse had been deposited and covered with a layer of soil, on which grass seeds had been sowed. In 1907 it had been almost crushed out by stronger grasses on the Links, and in 1908 I could find only one or two survivors, evidently not likely to keep a hold. By the Dee in 1907 and 1908 the grass had been much lessened in frequency by brine poured out from fish-curing yards ; but where not thus limited it seems likely to keep its place between the stones and by the roads.

F. rigida, Kunth. Hard Meadow-grass. Casual on town-refuse. Native in S. and W. Europe, including great part of Britain.

Not rare on the old bed of the Dee in 1893; but soon disappeared.

F. rottboellioides, Kunth. "On the sea-coast, in some places, but rare" (Cow, as *Triticum liliaceum*)—certainly a mistaken record.

F. (Vulpia) uniglumis, Soland. Single-husked Fescue-grass. Casual on town-refuse. Native in sandy places in W. Europe, including W. coast of England.

Rare; on old bed of the Dee, in 1893.

F. (Vulpia) ligustica, Bert. Casual on town-refuse. Native in Mediterranean area.

A few examples on Old Aberdeen Links, near Linksfield, in 1903.

F. (Vulpia) bromoides, L. (*F. sciuiroides*, Roth). Barren Fescue-grass. Possibly of alien origin near Aberdeen, though it may be native.

"Passim on the tops of dykes" (Skene). "Abundant at Rubislaw" (Harvey). Cow records it under two names apparently, viz. "*F. bromoides*, on a dry bank near Rubislaw, rare;" and "*F. Myurus*, in a field near Powis Hermitage; on a wall near Kittybrewster Toll; side of a field at Ferryhill."

This species grows on waste ground, earth walls, and other bare places about Aberdeen; and has been found in many localities; but it is never plentiful, and it is very uncertain in its recurrence. Its distribution here is thus suggestive that it is not a true native.

Adt. Ps. Ng B M P Nh D O. In many places but not frequent.

F. ovina, L. Sheep's Fescue-grass. Native; in dry natural pastures and on moors, etc.

"Stocket Moor, 1835" (Dickie hb.). "Broadhill; Links and Gallowhill" (Cow).

Formerly plentiful on grassy moors and natural pastures from which it has been expelled by agriculture and growth of the city; still common on the Links, on quarry-heaps about Rubislaw, etc. The form *vivipara*, in which the flowers are replaced by buds that fall off and root, forming separate plants, is plentiful up the valley of the Dee, and sometimes may be found on the shingles and bank of the Dee both above and below the Bridge of Ruthrieston.

Adt. Ps. In all; abundant in suitable localities, by the coast, on moors, etc.

F. rubra, L. Hard Fescue-grass. Native; common in pastures, both natural and artificial, on waste ground, etc.

"In muris et locis sterilioribus" (Skene, as *F. duriuscula*).
 "Beach" (Beattie). "Justice Mill Dam, and north bank of Dee"
 (Dickie hb.).

General, and often abundant.

Adt. Ps. In all; plentiful.

Var. *oraria* (Dum.), (*F. arenaria*, Osbeck). Creeping
 Fescue-grass.

"Passim in arena mobili" (Skene, as *F. rubra*). "Forms a large
 part of the Bents" (Knight). "Seashore, plentiful" (Harvey).

This form is abundant on the sandhills of the Links, being a
 valuable aid in preventing the drifting of the loose sand.

Adt. Ps. : : : : O. Abundant on Links north of the Don.

F. pratensis, Huds. Meadow Fescue-grass. In fields and
 by streams, not common; more frequent on refuse-heaps, or where
 it may have sprung from seeds evidently cast out. It thus appears
 to be an alien in and near Aberdeen, often introduced with seeds of
 pasture grasses.

"On the Inch" (Fl. Ab.). Occasionally around Aberdeen.

Adt. Ps. Ng B : P : D O. Not common.

F. arundinacea, Schreb. (*F. elatior* of published local
 records, for the most part). Native; among coarse herbage by
 rivers and on rocky sea-coasts; frequent in suitable habitats.

"In rupibus Don prope pontem" (Skene).

It grows here and there by the Don and the Dee within Aber-
 deen, though not commonly.

Adt. Ps. Ng B M P : D O. Locally common, by the rivers
 and coast.

Bromus giganteus, L. Tall Brome-grass. Native among
 coarse vegetation, chiefly by the Don and the Dee, often in thickets.

In Aberdeen I have seen it only between the bridges over the
 Don, in small quantity.

Adt. Ps. : B M P : D O. Locally by the rivers, especially
 by the Don.

B. madritensis, L. Upright Annual Brome-grass. A rare
 casual, on town-refuse. Native in the Mediterranean area, and dis-
 persed there and to other districts as a weed of cultivated soils and
 waste ground.

A few examples grew, in 1893, on the old bed of the Dee.

B. rubens, L. Casual on town-refuse. Native in the Mediterranean area.

Two or three plants appeared on Old Aberdeen Links in 1903.

B. maximus, Desf. Casual. Native in the Mediterranean area.

This appeared as a weed, in 1903, in my garden in Old Aberdeen, possibly from town-manure; and it has continued to propagate itself by seeds where allowed to grow; so it might evidently establish itself in any suitable habitat.

Adt. Ps. : : : : (D) : . Found in 1896 by Mr. J. Cobban in newly laid out street in Dyce, where it grew for some years. A specimen from Dyce was shown to me by him in 1909.

B. sterilis, L. Barren Brome-grass. May be only a denizen in Aberdeen, as it appears to be confined to the sides of fields and walls, and to rubbish heaps; but it is not uncommon in a few places.

"Ad margines agrorum" (Skene). "Old Aberdeen Churchyard, 1807" (Knight). "Farther end of the Old Town, 1826" (Harvey). "By the side of Crown Street" (N. Fl.). "At the foot of the Bridge of Don; side of Old-town Churchyard wall; on the side of Cluny's Lane and back road from it; on roadsides at Torry, etc." (Cow).

It has disappeared from most of these habitats; but it still grows by the road north-west from Cluny's Wynd, as the lane is now called. I have also seen it near King's College Library; but later alterations have led to its extirpation there. It grew on the rubbish in the old bed of the Dee, and on Old Aberdeen Links.

Adt. Ps. Ng : : P : : O. Very local. In 1903 it was abundant on the north bank of the Dee about a mile above the Bridge of Ruthrieston.

B. squarrosus, L. Squarrose Brome-grass. Casual on town-refuse. Native in the Mediterranean area.

"In corn-fields, etc.; occasionally in fields west of town" (Cow). Little confidence can be placed in Cow's records of the less common grasses.

Appeared on refuse on Old Aberdeen Links in 1903 and 1908.

B. secalinus, L. Smooth Rye Brome-grass. A rare casual around Aberdeen. Native in S. Europe; widely dispersed as a weed of cultivation and of waste ground.

"In fields, very rare; in a field by the Fir-hill well" (Cow).

I have gathered this once or twice in fields near Old Aberdeen, and on rubbish on the old bed of the Dee, in 1893.

Adt. Ps. (Ng) : : P : : (O). A rare casual.

B. racemosus, Parl. Racemose Brome-grass. Probably alien in Aberdeen.

Not common; in fields, probably introduced with seeds of other grasses and on waste ground.

B. commutatus, Bab. Confused Brome-grass.

Not uncommon in artificial pastures, probably introduced with other grasses, and on earthen walls, dry banks, and waste ground, where it may be native. It is not distinguished in any local list from *B. racemosus*.

Adt. Ps. Locally frequent; probably in all.

B. hordeaceus, Gren. et Godr. (*B. mollis*, Parl.). Soft Brome-grass. Native; on waste ground, dry banks, earth walls, and other poor soils; often too abundant in artificial pastures, having been introduced with more valuable grasses.

"Passim in muris et siccioribus" (Skene, as *B. secalinus*). "Footdee, 1835" (Dickie hb.).

General and frequent.

Var. *glabratus*, Doell. Not uncommon; often in a dwarfed state on dry banks, walls, etc.

Adt. Ps. In all; common, often too abundant.

B. arvensis, Godr. Field Brome-grass. Rare casual around Aberdeen. Native in Central and S. Europe; widely dispersed as a weed of cultivation.

"Broomhill" (Harvey). "Near Carden's Haugh" (Fl. Ab.).

I have seen only one or two examples, on town-refuse, on the old bed of the Dee, on Old Aberdeen Links, and near the Powis Burn east of King Street.

B. unioides, H. B. et K. A frequent casual in recent years, on town-refuse. Native in S. America; but widely dispersed by cultivation, as a fodder plant.

From 1903 onwards this has been common on the refuse-heaps on Old Aberdeen Links, etc.

Brachypodium (Trachynia) distachyum, Beauv. A rare casual on town-refuse. Native in the Mediterranean area, and dispersed as a weed of cultivation.

On Old Aberdeen Links in 1903 ; very rare.

[*Brachypodium sylvaticum*, Roem. et Schultes. Slender False Brome-grass.] Native in the district, though not recorded as having been met with in Aberdeen. Probably it grew within our limits, as it still grows just beyond them.

Adt. Ps. Ng B M P : : O. On the rocky north bank of the Don, just above the Old Bridge ; and plentiful on the coast in places from the south end of the Bay of Nigg southwards, and in small amount here and there by the Dee.

Lolium perenne, L. Common Rye-grass. Native in pastures ; but much more plentiful and larger in artificial pastures and hay-fields, where it is often the most commonly sown grass.

"Passim ad vias" (Skene).

Too plentiful to require citation of records or localities. On refuse-heaps and dung-stances the plentiful supply of food stimulates its growth to the production of large forms with branched inflorescences (*compositum*, Sm., and *ramosum*, Sm.). I have seen an inflorescence of the usual form and a much branched one produced upon the same stalk of an over-fed plant. On poor dry soils slender weak few-flowered forms are common.

Adt. Ps. In all ; plentiful.

L. multiflorum, Lam. Italian Rye-grass. Native in S. Europe.

Abundant around Aberdeen in hay-fields and artificial pastures, in which it is often sowed, and a very frequent alien on waste ground and refuse.

Adt. Ps. In all ; plentiful in artificial pastures and on waste ground.

L. temulentum, L. Darnel. A rather rare casual, on town-refuse, seldom in fields. A weed of cultivation, widely dispersed throughout the temperate zones.

On Old Aberdeen Links, from 1903 onwards ; scarce.

Var. *arvense* (With.). "In a field near Bridewell. Rare" (Cow).

I have found this variety near Aberdeen once or twice.

Agropyron caninum, Beauv. (*Triticum caninum*, L.). Dog's-tooth-grass. Native, chiefly by the Dee ; not common.

"On the borders of fields, etc. ; not uncommon ; at Torry ; side of King Street, near Gallowhill ; on roadside at head of George Street, abundant" (Cow, probably in mistake for the awned form of *A. repens*).

I have seen *A. caninum* as a wild plant within Aberdeen only by the Don, on the south bank, not far above the New Bridge, and by the Dee at the extreme limit of the parish. It occasionally grows as a casual on town-refuse, on Old Aberdeen Links, etc.

Adt. Ps. Ng B M P : : (O). Chiefly on shingle and banks along the Dee.

A. repens, Beauv. (*Triticum repens*, L.). Couch-grass. Native ; very common in cultivated ground, on waste places, near roads, etc.

"Passim agrorum pestis" (Skene). "Everywhere, three varieties, one awned" (Knight).

Var. *obtusum* and var. *barbatum* are both common around Aberdeen, especially the latter, which varies considerably in the length of the awns. As Skene says of *A. caninum* "passim ad vias" which does not apply to that species, it seems probable that he had mistaken for it a long-awned form of *A. repens*.

A. pungens, Roem. et Schult. Erect Sea Couch-grass. Native ; on sandy sea-coast, along with *A. junceum* and *A. repens*, between which it is believed to be a hybrid.

On the outer sandhills of the Links ; not common.

A. junceum, Beauv. Sand Couch-grass. Native ; common on the sandhills nearest the sea along the Links, from the Dee northwards, helping to bind the loose sand.

"Crescit vulgatissima in arena mobili maritima" (Skene). "Plentiful" (Knight, Harvey, N. Fl., Cow, and B. G.).

Triticum sativum, L. Cultivated Wheat. Cultivated around Aberdeen till about 1870 ; given up as a field crop when prices fell.

Still a frequent casual on town-refuse, and on waste ground near docks, stations, etc. Several varieties, awned and awnless, have been met with ; but they seldom reappear on the same ground, unless there has been a new deposit of rubbish.

T. (Aegilops) triunciale, Gren. et Godr. and

T. (Ae.) caudatum, Gren. et Godr. Casuals on town-refuse.

Native in the Mediterranean area, often growing as weeds among crops; probably brought among cereals.

On the bed of the Dee near the Railway Station, in 1893, a few.

Secale cereale, L. Rye. Cultivated as a grain crop on a few fields on poor soils, e.g., near Balgownie Links.

A very common casual on town-refuse. Dispersed by cultivation in many places around Aberdeen; but only as a casual.

Nardus stricta, L. Common Mat-grass. Native on moors, and here and there on the Links.

"Links north of the Broadhill" (Cow). "Stocket Moor" (Fl. Ab.).

Now occurs in Aberdeen only on the Links, in steadily diminishing amount, and on the remains of natural pasture in the western and northern districts; but it must formerly have been plentiful on the moors.

Adt. Ps. In all; locally plentiful.

Hordeum sativum, Jessen. Cultivated Barley.

A very common casual, in its different forms, on town-refuse and on waste places near lines of traffic. Bere (*H. vulgare*), two-rowed Barley (*H. distichum*), and six-rowed Barley (*H. hexastichum*) all are met with here.

H. secalinum, Schreb.

In August, 1916, I found a clump of this species on a piece of waste ground east of Ardarrach Road, where town-refuse had been laid in 1914-15.

H. murinum, L. Wall Barley. A rare casual in Aberdeen, on refuse. Native in Western Europe and the Mediterranean area; and widely dispersed as a weed of cultivation or by traffic.

"Near Aberdeen" (Mag. Zool. and Bot., I. 398).

I found one or two plants on Old Aberdeen Links in 1907, and others in 1908 and 1913, on a rubbish-tip near Fonthill Terrace.

H. marinum, Huds. (*H. maritimum*, With.). Squirrel-tail-grass. Casual, on waste ground and refuse-heaps. Native in W. Europe and the Mediterranean area; widely dispersed as a weed of cultivation and by traffic.

First observed here by me in 1893, on the old bed of the Dee. Every year since then it has been found, occasionally in fair abundance, on waste ground and on rubbish, e.g., by Merkland Road

East, on Old Aberdeen Links, etc. ; but only as a casual. It does not appear likely to become a denizen here.

Elymus arenarius, L. Upright Sea Lyme-grass. Plentiful on the sandy coast ; but probably not native in this part of Scotland.

It is not noticed by Skene, who was not likely to have omitted it had it grown on the coast within his knowledge. The earliest dated note I can find is "Bents, N. of Donmouth, 1802. Rare," in Prof. Knight's MS. Later records are as follows: "Sandy sea-shores. Rare at Aberdeen, at least I have observed it only in the space between the south end of Footdee Square and the Pier, and on the north side of the Don, not far from the sea, at both places in small quantity" (Murray, in N. Fl.). "On the sandy hills north and south of Donmouth" (Cow). Dickie and Prof. Macgillivray only repeat Murray's statement, with less detail. In the Natural History of Deeside, by Prof. Macgillivray, is "A patch of *Elymus arenarius* at Footdee is in great danger of being destroyed." This note refers probably to about 1850.

About 1870 the grass was still by no means abundant along the coast, though not confined to the two localities mentioned above. It has steadily increased in amount up to the present time ; and has for a good many years formed a very distinct belt along the foreshore on the seaward side of the dunes. Its action as a defence to the coast against erosion, and in fixing the drifting sand so as to form a raised terrace along the foot of the older dunes is very evident especially to the north of the Don, where the belt of *Elymus* stretches for miles, a few yards in width in most places. The long underground stems give off multitudes of roots, which spread through the sand, and hinder its being blown away, except in great storms ; and the leaves and stems raised above the sand are very effective in holding the loose drift in place. The belt widens out at the mouths of streams, especially at the mouth of the Don, passing up the estuary for a little distance. Here and there, where there is a break in the line of dunes, the grass grows on the low ground to 100 or 200 yards inland ; but the plants become more stunted as they recede from the sea. One such place is a little to the north of the Broadhill, on the site of the mouth of the Don about 400 years ago, where a wide break in the dunes existed until fifteen or twenty years past, when it was closed by the formation of the embankment to form the new road. Before 1890 it was not an uncommon sight to see waves carried over the low ground as

far as the Elymus now grows, and the hollow whitened with foam when a high tide was accompanied by a storm from the east. On a part of the coast north of the Bathing Station the sand front has been displaced by deposits of town-refuse, earth and other materials unsuitable to the growth of the grasses natural in such coasts. This part of the coast has to be defended against the waves by a facing of wooden palisades. Possibly in course of years sand may again collect on its seaward side in amount sufficient to allow of the Lyme-grass and similar natural protectors of the sandy coasts resuming their place and beneficial work. Previous to 1870 the belt of Lyme-grass did not extend far beyond the Don, though isolated plants might be met with some distance farther. It has steadily extended its range northwards in a continuous belt; and has passed into the parish of Belhelvie, in 1908, to a distance of a few hundred yards, over beach on which, in 1907, only scattered plants showed themselves, while in 1906 I saw no plants over a great part of the same beach. In July, 1911, a vigorous plant of this species had sprung up on a small piece of sandy coast just west of the south pier or breakwater.

The evidence thus seems to show that the Lyme-grass is of relatively recent introduction near Aberdeen, and that it has spread for a time slowly, but in recent years more rapidly, until it has taken almost exclusive possession of a belt of coast at the outer base of the sandhills, and is likely to have an important effect on the sandy coast. It has also had an effect in diminishing the frequency of certain annual plants that grow in the situations that it seizes upon, such species as *Cakile maritima*, *Salsola Kali*, and one or two others having become rare on our coasts. It may have been introduced unintentionally by fishing boats; and the places where it was first observed near Aberdeen seem to point to this method. From Foot-dee and the mouth of the Don it was spread by its light fruits blown or floated along the beach.

In this neighbourhood it has been followed by parasites, its roots being infested by small worms (*Tylenchus* sp., *T. Hordei*), which produce on them small white or pink swellings, while a sooty-spored fungus (*Ustilago hypodytes*) attacks the young stems, rendering the plants sterile, and filling the space between the stem and the leaf-sheath with its spores. Apparently associated with the Lyme-grass is a cup-like fungus (*Peziza* or *Geopyxis ammophila*), varying with age and development from half an inch to two inches in diameter. It grows among the grass, in the loose sand, imbedded

or projecting a little way, its fleshy brittle stalk being sunk in the sand. Though generally considered scarce, it may be found every autumn in considerable numbers among the Elymus to the north of the Don ; but I have not found it beyond this belt.

E. Caput-Medusæ, L. A very rare casual on town-refuse. Native in the Mediterranean area ; dispersed as a weed of cultivation and of traffic.

Once, in 1903, on the side of the recently made road north of the Bathing Station.

GYMNOSPERMIA.

CONIFERÆ.

Of this family it is probable that all existing representatives in Aberdeen are aliens, all, except perhaps a very few, growing where they were planted ; though a few may have sprung from seeds distributed by wind or by birds (Juniper) from introduced plants. It is probable, however, that the Scotch Fir and the Juniper were native in the parish, though destroyed by man, and reintroduced in later times. Both are certainly native in the western parts of the nearest counties. The Yew has long existed in Scotland, whether certainly native or an early introduction by man ; but it now exists near Aberdeen only where planted, in small numbers. The Common Spruce (*Picea excelsa*, Lk.) and the Larch (*Larix europæa*, L.) have been commonly planted in this district, as elsewhere in Scotland, for many years ; but the absence of trees in the eastern parts of the country was often remarked on by visitors from other lands. Boswell's account of Johnson's visit to Scotland affords frequent allusions to the want of trees. The Silver Fir (*Abies pectinata*) has been a favourite also for a number of years ; and in later times other species, largely from N. America, have also been introduced, and may be seen of considerable size, in the vicinity of houses ; but not in situations where they could be mistaken for natives.

Juniperus communis, L. Common Juniper.

In 1907 and 1908 I observed a few young plants, a few inches high, growing on the top of an old garden wall near Kepplestone. They must have been bird-sown ; but I do not know from what source.

Adt. Ps. : : M (P) Nh : : . "Islands above Bridge of Dee" (Knight). This species is scarce near Aberdeen, though common inland. A few bushes grow in the woods about Hazlehead.

Pinus sylvestris, L. Scotch Fir. Formerly native around Aberdeen, as shown by remains in peat-mosses ; but extirpated for a time in the eastern part of the country, so that those now existing near Aberdeen are of alien origin, alike in Aberdeen and in the adjacent parishes.

Taxus baccata, L. Common Yew. Now existing near Aberdeen only where evidently of alien origin. There is no evidence that it was native here formerly, though it may have been.

PTERIDOPHYTA.

FILICES.

Pteris aquilina, L. Bracken. Native ; on rough ground, on moors and in woods. Its abundance must have been much lessened by agriculture.

“Rubislaw, 1807” (Knight hb.). “Hilton, 1845” (Polson hb.).

Still rather common near Rubislaw and Hilton, and by the Don above the old Bridge.

Adt. Ps. In all ; locally plentiful.

Cryptogramme crispa, Br. ?

“*Pteris crispa*. King’s Links” (Knight).

Though native in the adjacent counties some miles inland, it is not so even in the parishes near the city, and is not at all likely to have grown on the Links. As the note is not confirmed by specimen or other evidence, it seems probable that it rests on a mistaken identification of a young leaf of some other plant.

Blechnum Spicant, With. Northern Hard Fern. Native ; in woods and on moors.

“Rubislaw, 1807” (Knight hb.).

It is now almost extinct in Aberdeen, only a few plants surviving about Rubislaw ; but it was no doubt common on the moors formerly.

Adt. Ps. In all ; abundant in suitable habitats.

[*Asplenium Adiantum-nigrum*, L. Black-stalked Spleenwort.] Native ; in crevices of rocks, more common on the coast, though also on rocks inland.

Not recorded from Aberdeen.

Adt. Ps. Ng B : : (Nh) : (O). Not common.

A. marinum, L. Sea Spleenwort. Native in crevices of rocks by coast.

In 1907 I found this species near the mouth of the Dee, east of Torry ; but it is extremely scarce there.

Adt. Ps. Ng. B : : : : . It is not uncommon on the coast south of the Bay of Nigg.

[**A. Trichomanes, L.** Common Wall Spleenwort.] Native ; clefts of rocks inland.

Not recorded from Aberdeen.

Adt. Ps. : : M : : : (O). "Corbie Den" (Beattie). Garden-wall, Kingcausie.

A. Ruta-muraria, L. Wall-rue Spleenwort. Probably native, though observed in Aberdeen only on old walls.

"Wall to east of Old Aberdeen Cathedral, Prof. Duncan" (Knight ; Dr. Duncan was Professor of Nat. Philosophy in King's College from 1800 to 1811). "Wall of King's College Library, Prof. Gregory ; wall of the Old Machar Cathedral ; on the Old Bridge of Don, Dr. Shier" (P. M.) "On a small bridge over a stream near Old Bridge of Dee, 1849 (P. M. hb.)."

This fern has disappeared, I believe, from all these localities ; but it is rather common on old garden walls at Arthurseat, and also, I have been told, at Raeden ; and I have seen a few plants for nearly thirty years on an old wall in Old Aberdeen, neither increasing nor diminishing markedly in numbers.

Adt. Ps. (Ng) : M : : : (O). Not common.

Athyrium Filix-fœmina, Roth. Lady Fern. Native on rough ground, on moors and in woods ; lessened in frequency around Aberdeen.

"Rubislaw, 1833" (Dickie hb.). "Hilton, 1845" (Polson hb.).

Still grows about Rubislaw and Hilton, and by the Don in Seaton, in diminishing amount.

Adt. Ps. In all ; locally common.

[**Cystopteris fragilis, Bernh.** Common Bladder Fern.] Native ; on rocks.

Very local in this neighbourhood, and not recorded from Aberdeen.

Adt. Ps. (Ng) : (M) P : : : . Not common.

[*C. alpina*, *Desv.*, var. *Dickieana*, (*Sim*). Dickie's Bladder Fern.] Native; in crevices of rocks.

In a cave near Cove, in Nigg. Almost extinct.

[*Polystichum lobatum*, *Presl.* Close-leaved Prickly Shield Fern.] Native in wooded ravines.

Not recorded from Aberdeen.

Adt. Ps. : : M : : : (O). Rare. "Corbie Den, etc." (Beattie, as *Polypodium aculeatum*).

Lastræa Filix-mas, *L.* Male Fern, or Blunt Shield Fern. Native; on moors and in woods.

"Hilton, 1845" (Polson hb.).

This fern is still not rare about Rubislaw and Hilton, and also by the Don about Woodside and in Seaton, but it must have been much more frequent here formerly.

Adt. Ps. In all; locally common.

L. montana, *T. Moore* (*L. Oreopteris*, *Presl.*). Heath Shield Fern. Native.

"In a ditch at roadside near Ruthrieston, July, 1864" (J. Roy, in MS.).

Plentiful on moors and in woods some distance inland from Aberdeen; but rare near the coast.

Adt. Ps. : B : : (Nh) : O. Local and scarce.

L. aristata, *Rendle et Britten* (*L. dilatata*, *Presl.*). Prickly Shield Fern. Native; common on moors and in woods.

"Hilton, etc." (Knight). "Rubislaw Den, 1835" (Dickie hb.).

This is like the Male fern in its present distribution in Aberdeen, but rather more frequent.

Adt. Ps. In all; plentiful.

Polypodium vulgare, *L.* Common Polypody. Native; on rocks, trees, and walls.

"Craiglug; Rubislaw; very common" (Knight). "Rubislaw Den, 1833" (Dickie hb.).

It is still rather common in suitable habitats about old quarries and walls in Rubislaw, near Hilton, etc., as well as on the rough bank of the Don above the Old Bridge, in Seaton.

Adt. Ps. In all; locally common.

Phegopteris Dryopteris, *Fée.* Oak Fern. Native; on shaded banks and in woods; very rare in Aberdeen.

"Rubislaw, near road, and Stockethad" (Beattie).

I have seen a few plants on the steep broken bank of the Don, in Seaton, a little way above the Old Bridge.

Adt. Ps. (Ng) : M P Nh : (O). Local and scarce.

[*P. calcarea*, Fée (*Polypodium Robertianum*, Hoffm.).] The only records for the occurrence of this species in N.E. Scotland relate to its having been found in an old quarry on Scotston Moor, as mentioned in Mr. John Sim's Botany of Scotston Moor, and confirmed thus, "Scotston Moor, 1863, J. Sim and J. R." (J. Roy, MS.). Probably planted there by someone interested in ferns.

P. polypodiodes, Fée. Beech Fern. Native ; among rocks and stones, usually in woods.

"Above Stocket Roadside" (Beattie).

This is the only Aberdeen record.

Adt. Ps. : : (M) P Nh : : . Very local, and nowhere plentiful.

Osmunda regalis, L. Common Royal Fern. Native ; in wet soil ; rare.

"Grew till 1797 in the Marsh, Broadhill" (Knight).

Adt. Ps. Ng : : : : : . On the rocky coast ; never common, and almost extinct for a good many years past.

Botrychium Lunaria, L. Moonwort. Native ; in short turf of dry pastures ; not common.

"Old Town Links" (Skene). "Aberdeen" (Beattie). "King's Links, and Links north of Don ; abundant" (Knight). "On a bank by the Stocket Road at north end of Summerhill, 1835" (Dickie hb.).

I have but rarely found this between Dee and Don, on the inner sandhills near the Don ; so that it appears to have become much less frequent in Aberdeen than it formerly was.

Adt. Ps. : B M : : (D) O. Scarce, except on Balgownie Links, where it is abundant in some places in short turf.

[**Ophioglossum vulgatum**, L. Common Adder's Tongue.] Native in various places in the counties near Aberdeen, though not within several miles of the city, so far as known, beyond the adjacent parishes. It may, however, occur, as it is very local and very easily overlooked. I found it, in 1901, in a small hollow of the inner sandhills on Belhelvie Links, confined to a very limited area where the short turf appeared to suit it.

EQUISETACEÆ.

Equisetum arvense, *L.* Field Horsetail. Native; in damp soils, where it may be a troublesome weed of fields or gardens.

“*Passim in arvis*” (Skene).

Though its prevalence has been much reduced by drainage of the soil, it is still common in damp fields and roadsides near Woodside, Hilton, Rubislaw, etc., and by the margin of the Dee.

Adt. Ps. In all; locally too abundant, forming a harmful weed.

E. sylvaticum, *L.* Wood Horsetail. Native; on moist banks and in thickets.

Very scarce now within Aberdeen, though no doubt once frequent. Still about Rubislaw and Hilton. This never seems to persist as a weed in agricultural ground.

Adt. Ps. In all; locally plentiful.

E. palustre, *L.* Marsh Horsetail. Native; in very wet or marshy soils, probably not uncommon before drainage in Aberdeen; on wet moors.

A few plants may be found on the wet shore of the Dee below the Bridge of Ruthrieston.

Adt. Ps. Ng B M P Nh : O. Rather local; occasionally in some plenty. The varieties *polystachum*, Vill., and *nudum*, Newm., both grow in Perwinnes Moss, at the north end of Scotston Moor.

E. limosum, *L.* Smooth naked Horsetail. Native; in swamps, pools, and ditches; much reduced in frequency by agriculture and drainage.

“Marsh below Broadhill” (Beattie).

In Walker’s Dam, and occasionally by the Dee.

Adt. Ps. In all; plentiful in suitable habitats.

[**E. variegatum**, *Seleich.* Variegated Rough Horsetail.] Native by the Dee, west of Aberdeen.

In Macgillivray’s Natural History of Deeside is “By the Dee at the Railway Bridge, Aberdeen. Mr. James Farquharson.” This record is no doubt the same as “South bank of the Dee, a short way above the Railway Bridge, Mr. James Farquharson” (P. M.). The locality is in Nigg, outside the bounds of Aberdeen; but the wet stony bank on the north side of the Dee is also quite a suitable habitat.

There is no record of it within the parish.

LYCOPODIACEÆ.

Of the species of *Lycopodium* native in Scotland none has been recorded from the parish of Aberdeen, though almost certainly one or more of them grew on the peaty moors that covered so large a part of the surface before cultivation was begun here. They are all a good deal more frequent on moors inland than they are in the vicinity of the coast; but the following have been found in the parishes adjacent to Aberdeen:—

[*L. selago*, *L.* Fir Club Moss.] Native on peaty moors.
Adt. Ps. Ng : M P Nh : O. Scarce.

[*L. clavatum*, *L.* Common Club Moss, or “Tod’s Tails.”] Native on moors.

“Wolf’s-claw, passim in ericetis” (Skene).

Adt. Ps. Ng : M : Nh : (O). Rare.

[*L. alpinum*, *L.* Savin-leaved Club Moss.] Native; on moors.

Adt. Ps. (Ng) : M P Nh : (O). Scarce.

SELAGINELLACEÆ.

[*Selaginella selaginoides*, *Link.* Less Alpine Club Moss.] Native; on wet moors and pastures, among short herbage, or on barer spots.

There is no record of this species from Aberdeen, though there is reason to believe that it must have grown on the wet moors in Aberdeen, as it still grows on Scotston Moor, not uncommonly.

Adt. Ps. : (B) M : : : O. Probably in most of the adjacent parishes; but easily overlooked.

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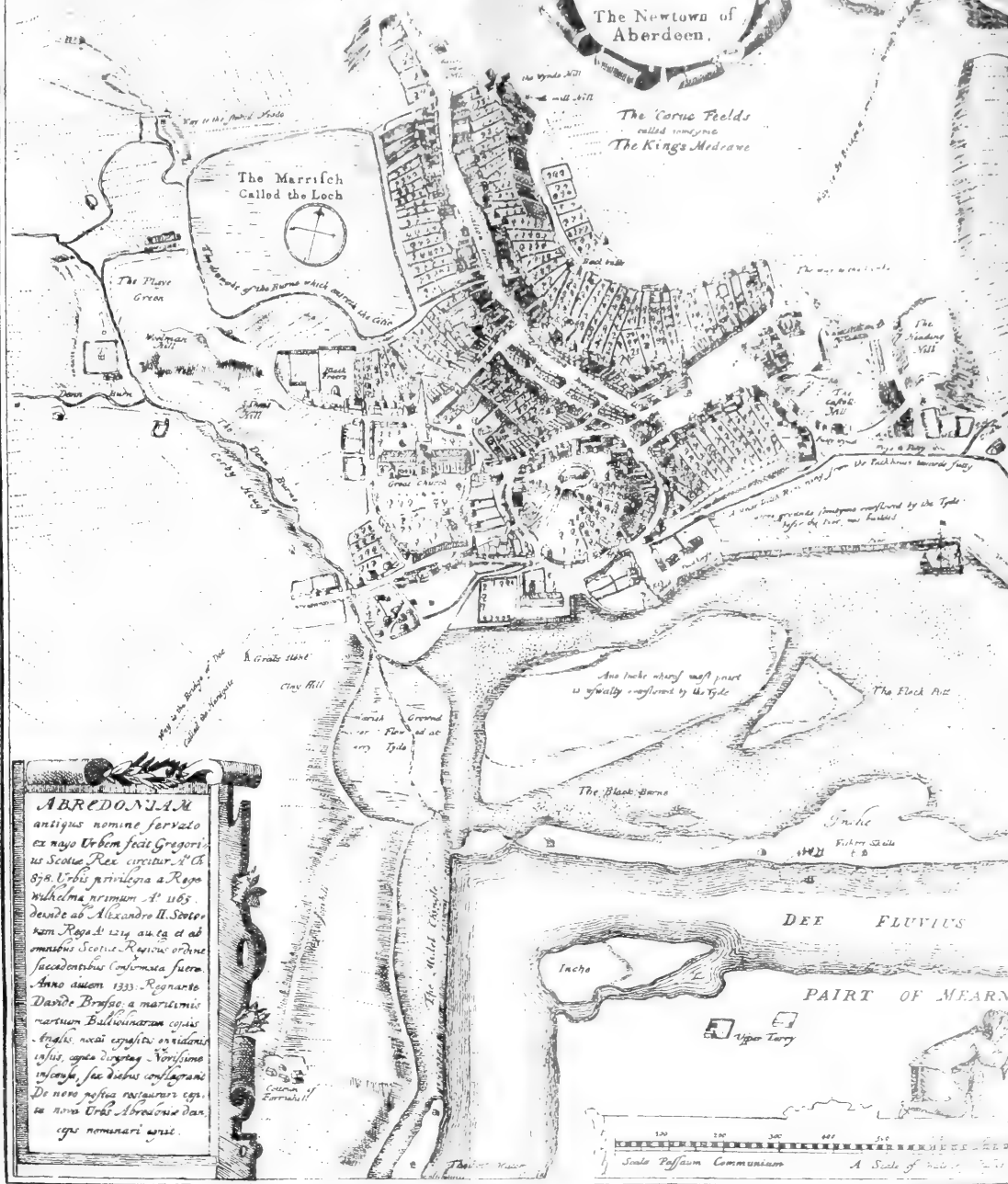
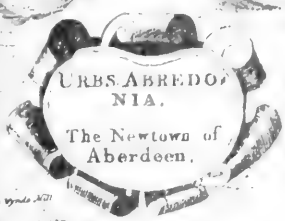
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 1661.



ABREDONIAM
 antiquo nomine servato
 ex nayo Urbem fuit Gregori
 us Scotia Rex. circiter A. 874
 874. Urbis privilegia a Rege
 Wilhelmo primogen. A. 1165.
 deinde ab Alexandro II. Scotie
 nam Regis A. 1214. au. et ab
 omnibus Scotia. Regibus ordine
 succedentibus confirmata fuerunt.
 Anno autem 1333. Regnante
 Davide Brofaco a maritimo
 martium Bulloniarum copias
 Anglis vocati copiosius invadentes
 capti, capta Duxburg. Versissimo
 incendio, seu datus confaganti
 De novo refectus restauratus capu
 su nomen Urbis ABERDONIA dux
 cepit nominari. apud.

